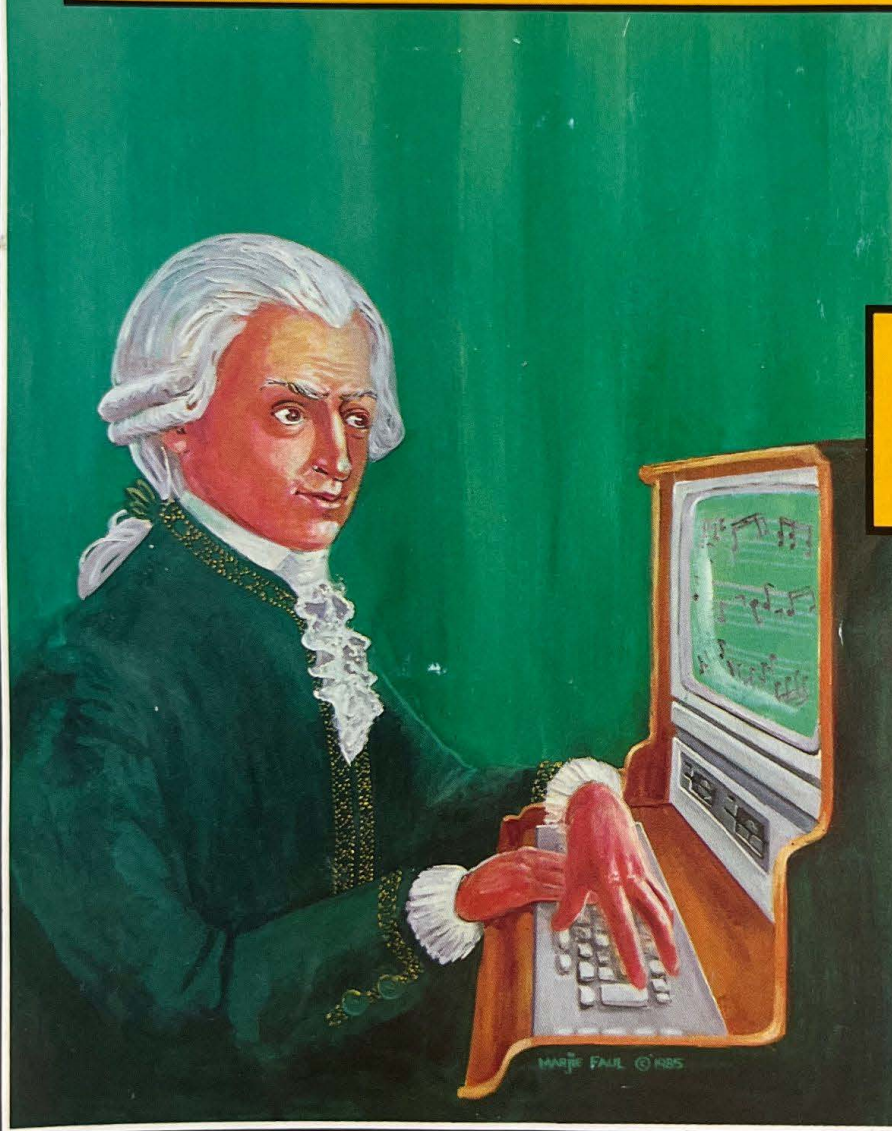


# soft sector™

The Monthly Magazine For Sanyo Personal Computer Users

## Sanyo Symphonia



**Fine Tuning  
WordStar**

**Setting  
The Tone  
For Tax Time**

**768K: Memory Upgrade On A Grand Scale**





# PICASSO



## The **ULTIMATE** In Computer Graphics Programs

**PICASSO** by Bill Dunlevy

This is the one to set the standards! PICASSO does more than many graphics programs costing thousands of dollars more. Never before has such power and simplicity been available to the user.

What does PICASSO do? Everything!

- Large, helpful picture menus, eliminate the need to memorize control keys or cumbersome graphic languages.
- Keyboard, Joystick, or even Graphic Tablet controlled, in "directional" or "free-hand" format.
- You can choose from 64 pre-mixed colors, or mix your own for over 10,000 possible patterns, and save your favorites to a palette on disk!
- Over 20 different "brushes" let you draw with symbols in different "densities" for an air-brushed effect.
- Special "Rubber band" graphics let you see what you're doing AS you make adjustments on lines, rays, boxes, circles, polygons, stamps, etc.
- Versatile "Fill" permits you to change multi-color patterns.
- You're not restricted to simple circles and ellipses here! You can create ANY kind of polygon: from triangles, to elliptical pentagons, to perfect circles and everything in between!
- Powerful "Stamp" system lets you copy, move, save, and perform complex operations with any sections of your pictures.
- You can use your picture files with MichTron's new FREEZE FRAME graphic printing utility for fantastic hardcopy pictures, and in your own BASIC or machine language programs for all your graphic needs.

What DOESN'T PICASSO do? Restrict your imagination.

PICASSO is guaranteed to knock your smocks off!

256K 8ANYO MBC-550/555 required

(Joystick recommended)

**\$99.95**

# MichTron

576 S. Telegraph Road Pontiac, Michigan 48053  
Orders & Info: (313) 334-5700



# SANYO High Performance Computers

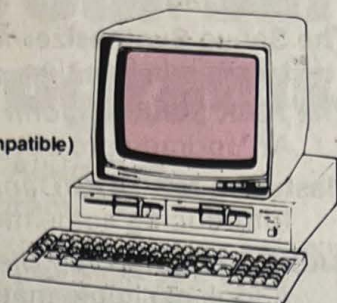
## SYSTEMS

MBC 550	\$669
MBC 550-2	\$729
MBC 550-4	\$849
MBC 555	\$899
MBC 555-2	\$1049
MBC 555-4	\$1249
MBC 555-XT, 10 meg	Special
MBC 775 Portable	Special

## SANYO OPTIONS

DM 5109, Hi Res, 9" Green	\$69
DM 2112, 12" Green	\$84
DM 2212, 12" Amber	\$89
CRT 30, 12" Hi Res	\$109
CRT 36, 12" Hi Res	\$149
CRT 50, RGB Color	\$349
CRT 70, RGB Color	\$549
CT 1300 RGB/Com.	\$249
160K drive ... \$119	w/software ... \$259
360K drive ... \$149	w/software ... \$359
800K drive ... \$169	w/software ... \$399
Add on RS232 Port	\$69
Add on 64K memory	\$39
512K memory upgrade Kit	Special
Video Ram Board	Special
10 meg internal hard disk	Special
10 meg external hard disk	Special

(IBM Compatible)



## STANDARD FEATURES

- 16 bit, 8088 CPU
- 128Kb RAM, Expandable to 512Kb
- MS-DOS operating system
- Detachable Keyboard
- Interface For Centronics Parallel Printer
- Color Graphics
- Choice of 160Kb, 360Kb, 800Kb, or 10 meg disk drives
- FREE Bundled Software
- Wordstar, Calcstar, & Easy Writer I
- Bonus Pak Options (with two drive models)

**EASYPAK**  
Easy Writer II  
Easy Planner  
Easy Mailer  
Easy Filer

**STARPAK**  
Data Star  
Report Star  
Spell Star  
Mail Merge

## NEW DEVELOPMENTS

- \*\*\*\*\* **512 Memory Upgrade** \*\*\*\*\*
- Sanyo MBC Now Upgradable to 512K RAM
- \$ Special
- \*\*\*\*\* **Video RAM Board** \*\*\*\*\*
- Run Lotus 123 on your Sanyo MBC Computer
- \$Special
- \*\*\*\*\* **MBC 555-XT** \*\*\*\*\*
- Internal 10 meg hard disk system
- \$Special
- \*\*\*\*\* **MBC 775 Portable** \*\*\*\*\*
- Built in 9" Color Monitor
- Dual 360Kb drives
- IBM expansion slots
- \$Special
- \*\*\*\*\* **10 meg External Hard Disk** \*\*\*\*\*
- Designed especially for the Sanyo
- Matching color case
- \$Special
- \*\*\*\*\*

# CHECK OUT THESE LOW PRICES!!!

## MONITORS



## PRINTERS



## DISK DRIVES

## SOFTWARE

300G	12" Hi Res Green	\$129
300A	12" Hi Res Amber	\$149
310A	12" Hi Res Amber (IBM)	\$169
Color 300	12" Composite	\$269
Color 500	RGB/Composite	\$389
Color 600	Hi Res RGB	\$449
Color 700	Super Hi Res RGB	\$539

ZVM 122	12" Hi Res Green	\$89
ZVM 123	12" Hi Res Amber	\$99
ZVM 124	12" Hi Res Amber (IBM)	\$149
ZVM 131	13" Hi RGB/Composite	\$289
ZVM 133	13" Hi Res RGB	\$389
ZVM 135	13" Hi Res RGB/Composite	\$449
ZVM 136	13" Hi Res RGB	\$649

105	12" Hi Res Amber	\$99
115	12" Hi Res Green	\$119
116	12" Hi Res Amber	\$129
210	12" RGB Composite	\$269
220	12" RGB Composite (IBM)	\$269
410	12" Hi Res RGB	\$349
420	12" Hi Res RGB (IBM)	\$349
440	12" Super Hi Res RGB	\$589

CR 5500	12" Hi Res Green	\$84
CR 5650	12" Hi Res Green	\$109
CR 5650	12" Hi Res Amber	\$109
CR 6500	13" Composite	\$249
CR 6550	13" Composite	\$229
CR 6600	13" RGB w/Free Apple Card	\$199
CR 6700	13" Hi Res RGB	\$449
CR 6800	13" Hi Res RGB	\$399

TR 120	12" Hi Res Green	\$159
DM 2112	12" Hi Res Amber	\$169
CT 1300D	13" RGB/Composite	\$249
DT 5101	10" Dual Mode Composite	\$299
DT 103	10" Super Hi Res RGB	\$549
DTM 140	14" Hi Res RGB	\$599

DM 5109	9" Hi Res Green	\$69
DM 2112	12" Hi Res Green	\$84
DM 2212	12" Hi Res Amber	\$89
CRT-30	12" Hi Res Amber	\$109
CRT-36	12" Hi Res Green	\$149
CRT-50	13" Hi Res RGB	\$349
CRT-70	13" Super Hi Res RGB	\$549

Model 152	150 cps, RS-232 15" Carriage	\$199
-----------	------------------------------	-------

RX 80	100 cps draft	\$225
RX 80 FT Plus	100 cps Friction/Tractor	\$289
RX 100	100 cps Friction/Tractor	\$389
FX 80 Plus	160 cps Friction/Tractor	\$399
FX 100 Plus	160 cps Friction/Tractor	\$599
JX 80	160 cps, 7 color	Special
LO 1500	200 cps, near letter quality	Special
Near Letter Quality board		Special
Hi-80 Plotter		Special

Comritter II	13 cps letter quality	\$359
Comritter III	cps letter quality	\$699
Comritter IV	36 cps letter quality	\$799
Comritter 420	420 cps, near letter quality	Special

Okimate 20	New, Color NLO	Special
182	New, 120 cps	\$249
82A	120 cps	\$299
83A	120 cps, wide carriage	\$599
84P	200 cps, near letter quality	\$689
92A	160 cps, near letter quality	\$379
93P	200 cps, near letter quality	\$589
Pacemark 2410	350 cps NLO	\$1895

KXP-1090	96 cps draft	\$199
KXP-1091	120 cps, near letter quality	\$289
KXP-1092	180 cps, near letter quality	\$449
KXP-1093	160 cps, near letter quality	\$629
KXP-3151	22 cps letter quality	\$499

EXP-400	13 cps letter quality	\$259
EXP-500	14 cps letter quality	\$349
EXP-550	19 cps letter quality	\$429
EXP-770	31 cps letter quality	\$799

SG-10	120 cps, near letter quality	\$249
SG-15	120 cps, near letter quality	\$389
SD-10	160 cps, near letter quality	\$349
SD-15	160 cps, near letter quality	\$489
SR-10	200 cps, near letter quality	\$499
SR-15	200 cps, near letter quality	\$649
Powertype	18 cps letter quality	\$339

51	SS/DD	\$79
52	DS/DD	\$99

55B	hi, DS/DD	\$149
55F	hi, DS/QD	\$169

SA-455	ht, DS/DD	\$139
10 meg w/controller (IBM)		\$799

9409	DS/DD	\$139
9409T	DS/QD	\$159
9428	hi	\$129
9429	hi	\$149

Volks 12	New 300/1200 baud	\$199
Volksmodern 300 baud		\$59
Signalman Mark X		\$129
Signalman Mark XII 300/1200		\$259
Volksmodern Cables		\$10

Flip-N-File 10		\$3.95
Flip-N-File 15		\$6.95
Flip-N-File 25		\$14.95
Flip-N-File 50		\$19.95

80 Col. Printer Stand		\$14.95
132 Col. Printer Stand		\$16.95

80 Col. Printer Stand		\$14.95
132 Col. Printer Stand		\$16.95

80 Col. Printer Stand		\$14.95
132 Col. Printer Stand		\$16.95

80 Col. Printer Stand		\$14.95
132 Col. Printer Stand		\$16.95

80 Col. Printer Stand		\$14.95
132 Col. Printer Stand		\$16.95

80 Col. Printer Stand		\$14.95
132 Col. Printer Stand		\$16.95

THE  
**COMPUTER  
WAREHOUSE**

A Syntel Company

1407 DOWNTOWN BLVD., RALEIGH, N.C. 27603

**ORDER TOLL FREE  
800-334-8261**

For Information  
& in N.C. 919-832-3479



\*Price and availability subject to change without notice. MasterCard and Visa add 3% All returned items must have a return authorization number (RMA) and are subject to a 15% restocking fee.

Hours: 9-6 Mon. - Sat. E.S.T.



# soft sector

The Monthly Magazine for  
Sanyo Personal Computer Users

Vol. I, Issue 8

March 1985

Editor and Publisher  
Lawrence C. Falk

Managing Editor T. Kevin Nickols  
Copy/Reviews Editor Belinda Kirby  
Technical Editor Danny Humphress  
Submissions Editor Jutta Kapfhammer  
Editorial Associates Monica Dorth, Tamara Solley  
Consulting Editors Gordon Monnier, Courtney Noe  
Contributing Editors Fred Blechman,  
Michael W. Ecker, Ph.D., Tim Purves,  
Brian M. Stone, Charlotte A. Stone  
Editorial Assistants Jody Doyle, Wendy Falk,  
Debbie Hartley, Suzanne Benish Kurowsky,  
Lynn Miller, Shirley Morgan  
Technical Assistant Ed Eilers

Art Director Neal C. Lauron  
Design Staff Jerry McKiernan, Eileen O'Malley,  
Kevin Quiggins

Advertising Coordinator Doris Taylor  
(502) 228-4492  
Advertising Assistant Debbie Baxter

FPSS, Ag. Publishing Enterprises, Inc.  
President  
Lawrence C. Falk

Editorial Director James E. Reed  
Creative Director Sally Gellhaus

General Manager Patricia H. Hirsch  
Assistant General Manager for Finance  
Donna Shuck  
Bookkeeper Diane Moore  
Advertising Accounts Bev Taylor  
Dealer Accounts Judy Quashnock  
Administrative Assistant To The Publisher  
Marianne Booth  
Manager of Public Relations  
Charles L. Springer  
Director of Fulfillment Services Bonnie Shepard  
Assistant Customer Service Manager Sandy Apple  
Customer Service Representatives  
Deidra Henry, Monica Wheat  
Word Processor Manager Lynda Wilson  
Research Assistants Laurie Falk, Judi Hutchinson,  
Debbie Leake, Loretta Varda  
Dispatch Janice Eastburn  
Production Assistant Melba Smith

**SOFT SECTOR** — The Monthly Magazine for Sanyo Personal Computer Users (ISSN 8755-7460) is published every month of the year by FPSS, Ag. Publishing Enterprises, Inc., 9529 U.S. Highway 42, P.O. Box 385, Prospect, KY, 40059. Phone (502) 228-4492. **SOFT SECTOR** — The Monthly Magazine for Sanyo Personal Computer Users and the **SOFT SECTOR** logotypes are registered ® trademarks of FPSS, Ag.

Second class postage pending at Prospect, KY and additional offices. POSTMASTER: Send address changes to **SOFT SECTOR**, P.O. Box 385, Prospect, KY 40059. Forwarding Postage Guaranteed.

Entire contents copyright © 1985, by FPSS, Ag. **SOFT SECTOR** — The Monthly Magazine for Sanyo Personal Computer Users is intended for the private use and pleasure of its subscribers and purchasers and reproduction by any means is prohibited. Use of information herein is for the single end use of purchasers and any other use is expressly prohibited. All programs herein are distributed in an "as is" basis, without warranty of any kind whatsoever.

Sanyo MBC-550/555 and 775 are registered ® trademarks of the Sanyo Business Systems Corp.

Subscriptions to **SOFT SECTOR** — The Monthly Magazine for Sanyo Personal Computer Users are \$28 per year in the United States. Canadian rates are U.S. \$35. Surface mail to other countries is U.S. \$64, air mail U.S. \$85. All subscriptions begin with the next available issue.

Payment accepted by VISA, MasterCard, American Express, Cash, Check or Money Order in United States currency only.

For Soft Sector Advertising and Marketing  
office information, see Page 94.

## FEATURES

- WizStar — Polishing A Classic/J. Weaver Jr.** ..... 8  
Patching WordStar to add several new features
- The Sanyo Synthesizer/Marcia L. Peters** ..... 16  
Music composition — and you thought it could only croak?
- The 768K Solution/John Domingues** ..... 36  
An upgrade project going beyond the limits
- Mastering MS-DOS/Danny Humphress** ..... 40  
Introducing some modern plumbing techniques
- BASIC Training/Fred Blechman** ..... 44  
A look at simple math functions
- An Exploded Piechart/Felipe Lebron** ..... 52  
A program that determines whose slice is the best
- Five Card Draw/Rodney Viessman** ..... 60  
Sit across from the sharpest dealer to ever cut the cards
- Taking A Swipe At Ambiguity/Danny Humphress** ..... 84  
A program that adds a slash to your daisy wheel's zeros
- Printing Tax Forms With CalcStar/Randolph Mateer** ..... 88  
Letting your software help to get you through April

## DEPARTMENTS

- Advertisers Index** ..... 94
- Back Issue Order Form** ..... 85
- Business Sector/Charlotte & Brian Stone** ..... 28  
Solutions to your applications problems
- Input/Output/Tim Purves** ..... 48  
Answers to your technical questions
- Letters To The Editor** ..... 6
- Racksellers** ..... 93
- Soft Talk** ..... 82  
New products and services
- Submitting Material** ..... 62
- Subscription Information** ..... 94

## REVIEWS

- CheckFile** ..... 75
- Knobelspiel Generahl** ..... 81
- Robounce** ..... 78
- SuperTax** ..... 80
- Tanner & The Jungle Temple** ..... 72
- VersaCom** ..... 76
- W-ED** ..... 74

Cover illustration copyright© 1985 by Marjie Faul



# Sanyo users get a NEW software deal . . . **NOW, Your Sanyo can Write Programs for You**

Your computer is fantastically fast...once it knows what to do. You probably realize that a computer is the combination of hardware and software, working together smoothly, to give you what you want. Either one alone is useless. Software is really the key...the "mind" of a computer system.

Every project or task you want to do requires a new specific software application to make your computer behave exactly the way you desire.

Of course you may be able to "force fit" your application into some existing canned package you have, but to really be flexible you need a separate program for your special purpose.

Until now, that meant you were forced to pay money for application software off the shelf, or if you could afford it, have it custom written for you, or if you were qualified, do it yourself...spending endless hours figuring it out and writing it. **Now, your computer can write individual application programs for you.** These programs are each separate, unique software programs that run in the standard BASIC on your computer.

## **Programs Without Programming**

ICR FutureSoft has released the **NEW** and improved version of automatic program writers called **QUIKPRO+II**. It is a program that actually writes separate BASIC Programs for you...to do exactly **what you want to do**. And it's **simple and easy to use...you create a new program in minutes instead of hours.**

You can quickly generate a new program when you want it. You can generate thousands of different unique programs, each one standing alone as a complete program that runs in BASIC. Best of all, **you do not have to be a programmer to use it.** The QUIKPRO+II software becomes your personal programmer, waiting to do your work for you any time of day or night you choose to use it.

## **The All-In-One Program**

The custom programs you can generate from the new QUIKPRO+II will let you perform Personal Filing, Fast Data Retrieval, including Changes, Deletions and Searches. You can selectively Print Custom Letters, all kinds of forms (if you have a printer). This new feature is called **Free Form Reporting**. You can even include calculations in the programs you create. QUIKPRO+II is perfect for creating inventory programs. You can use QUIKPRO+II to prepare letters and selectively address the letters to only certain people. And of course you can **SORT** your reports so that they print out information in the order that you want it, or print out only certain information. In fact, you can actually use QUIKPRO+II to create an easy to use Data management program or a simple spread sheet. You can do all of this and more with this All in One program...and the best part is that **you need no BASIC programming experience.**

## **How Does It Work?**

You can do it simply by answering easy questions that appear on your screen. You won't have to learn any Computer commands or special Programming Languages. Instantly the QUIKPRO+II software instructs the computer to write efficient error free, BASIC Programs and puts the **Programs right onto your own disk, ready for you to use.**

The resulting custom program is truly a separate BASIC program. You can list it. You can modify it. You can customize it to your own liking. You can actually see what makes it tick.

## **User Proven and Widely Used**

QUIKPRO Software is **used worldwide in thousands of sites** by executives, schools, small businesses, universities and major companies like: Johns Hopkins

University, Chicago State, U.S. Dept. of Agriculture, General Electric, Duracell International, Ford Motor Company, Westinghouse United Technologies, American Express, University of Pennsylvania, City of New York and many, many more.

## **Read What Users Say. . .**

From a GENERAL CONTRACTOR/  
CONSTRUCTION COMPANY  
owner:

*"The program seems to be good and I must compliment you on the documentation. It is the **best** of its kind that I have seen."*

From an INSURANCE AGENCY  
MANAGER:

*"I would like to compliment you on an excellent...program."*

From a HOBBIEST USER out in  
Oklahoma:

*"I thought I would drop a quick note about QUIKPRO. I have it running and it **will do** what I bought it for. I am very pleased with it..."*

This from a Vice-President of a  
Federal Savings & Loan:

*"In the past several weeks, I have used QUIKPRO software on four **different** programs. I am pleased with the results achieved so far and with your help over the telephone."*

## **Special Sanyo Deal**

Sanyo users can get QUIKPRO+II direct at the introductory price of \$74.50 plus shipping and handling with a special 10 day satisfaction guarantee from delivery. You can order now by calling TOLL FREE 24 hours daily 1-800-824-7888, ask for operator 441. In California call 1-800-852-7777, operator 441.

Specify your Sanyo Model.

Send mail orders to:

ICR-FutureSoft, 1718 Kingsley Ave., P.O. Box 1446-SA, Orange Park, FL 32073

Dealer inquiries call (904) 269-1918  
QUIKPRO+II is also available on IBM-PC, TRS-80, CP/M 8" and Osborne.



# LETTERS TO THE EDITOR

PAR  
AVION

## SKETCH-IT VER. 2

**Editor:**

I'd like to congratulate Dan Webber and Galen Oellig on their superb program, *Sketch-It Ver. 2*. It does indeed provide the awesome computing power and fun that we all knew our Sanyos could deliver. Furthermore, its educational value is increased by the authors' clear programming style and concise documentation.

I noticed one minor bug. When you type a filename of eight letters, the final character does not appear on the screen. Here's the fix for it. Change Line 1275 to read:

```
1275 LOCATE 25,COL: PRINT TXT$;  
** **;; WEND: RETURN
```

Thanks to everyone whose input makes *SOFT SECTOR* the excellent resource that it is.

Marcia L. Peters  
Providence, RI

**Editor's Note:** And thank you, Marcia. I'm certain Mr. Webber and Mr. Oellig will consider that high praise indeed after they take a look at your own program in this issue.

**Editor:**

I would like to thank Mr. George Algie of Richmond Heights, Ohio, for locating and correcting two possible errors with the *Sketch-It Ver. 2* program listing in the January, 1985, issue.

There are two things I have found in *Sketch-It* that you might want to change. In Line 1210, the RESUME 1180 should read RESUME 1175. The other item is that in using the pie chart wedges, if you want the first point to be horizontal to the right, you will not get a radial line. This is because it becomes zero degrees. I have solved

the problem by adding Line 1068:  
1068 IF REAL1=0 THEN REAL1=-1.

Dan Webber  
Rolla, MO

## PATIENCE IS A . . .

**Editor:**

I called [your offices] about two weeks ago and was told by your receptionist that the magazine mailing was late, but I should get my copy soon.

You mentioned we should alert you if we don't get our copy by the 25th of the month. I must say I have never gotten my copy that early, but certainly never later than the first or second of the month.

Can you send me a duplicate copy, or has your mailing been even later?

Carl Milner  
Aurora, CO

**Editor's Note:** At risk of stating the obvious, we have been running several days behind our usual publishing schedule since the January issue. This has been due, in a phrase, to there simply not being enough hours in a day. With good fortune and support from the readers and advertisers, *SOFT SECTOR* has been able to grow in size by a whopping 50 percent over the past five months. You would expect the added workload to accompany such rapid growth, and of course, it has.

But that's our problem, right? You just want your magazine! Well we understand that, and you can rest assured that we will be working feverishly until we have returned to schedule.

By the way, though: Our "Subscription Information" section reads that you should contact us if you haven't

received your copy "by the 15th of the month of publication." Of course, we know everyone wants their *SOFT SECTOR* well before then, and we intend to see to it that you get them.

## THE OLD RUN'ROUND

**Editor:**

After having tried the sound routine from *Run'Round* (December '84), and getting the same weird patterns across the screen or an error in Line 30, resulting in having to reboot the system, I realized I was doing something wrong. Never once did I get a sound from my Sanyo, and I have tried all different programs. What am I doing wrong?

Mike Stangel  
Merritt Island, FL

**Editor's Note:** J. Weaver Jr., the author of *Run'Round*, was asked to respond.

Sorry, Mike, the fault is mine. The variable 'I' in the routine that reads the machine language code and POKEs it to memory (Line 50 in the original program) must be defined as a string variable, and the two variables in the CALL to the sound routine must be defined as integers. Adding the DEFINT and DEFSTR statements from Line 40 of *Run'Round* will solve your problem.

J. Weaver Jr.  
Factory Programming  
Monroe, MI

## ENTER THE WIZARD

**Editor:**

I would like to obtain a copy of the *WordStar* user patch listing that changes

*Continued on Page 86*





**SANYO** said:

***"TLS is the best MS-DOS training we have seen" and asked us to configure it for their MBC550 & 555 Computers.***

***These Manufacturers Agree TLS IS BEST!!***

AT&T, Compaq, Heath/Zenith, ITT, Sperry, Tandy, Visual & Wang

## **SANYO TRAINING BONUS PACK**

**A \$70.00 Value for only \$39.95**

**Includes TLS and TLS Tutor for WordStar/MailMerge**

### **"TLS"**

**A Disk Based Tutorial  
for MS-DOS**

Graphics and text create a pleasant learning environment. Individual levels of training are selectable by First Time Experienced or Professional users. Training is hardware specific, enabling the user to define hard disk, single or dual floppy instructions. A reference guide leads first time users through getting started. All command subjects are summarized for easy review.

Retail Price \$39.95

### **"TLS Tutor-WordStar/MailMerge"**

**Interactive Training on  
Audio Cassette**

In less than an hour you will be using WordStar to create correspondence, mailing lists, form letters and all the other features of these powerful programs. Audio cassette training from Total Learning Systems lets you use the actual software not a simulation. TLS Tutor step-by-step instructions are as effective as if you had a private trainer, but much less expensive.

Retail Price \$29.95

**Combined Price "Sanyo Bonus Pack" \$39.95\***

**TLS Tutor for CalcStar and InfoStar Special \$30.00 (\$60.00 value)**

***TLS for IBM-PC and PC Compatibles available from most Sanyo dealers and participating Heathkit, Entre and Computerland Stores.***

## **NEW FOR SANYO 775**

TLS-plus PC compatible version adds color/sound option and hard disk instructions. Includes TLS Tutor for EasyWriter II and book style storage case. **\$49.95**

**TLS TUTOR EASY PLANNER/FILER \$30.00**

### **ORDER BY PHONE (305) 485-6882**

#### **OR BY MAIL**

☐ Bonus Pack \$39.95    ☐ TLS Tutor \$30.00    ☐ TLS Plus \$49.95

☐ Charge My: (circle card)

Visa/MasterCard® \_\_\_\_\_ Expires \_\_\_\_\_

☐ My check for \$ \_\_\_\_\_ plus \$4.00 shipping and handling is enclosed

Ship to: \_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(City) (State) (Zip)

**Total Learning Systems, Inc., 3451 N.W. 55th Street, Fort Lauderdale, FL 33309**  
**Dealer Inquiries Invited**



*WordStar is an amazing program, all right, but even a Rolls Royce can use a little polish. Just wait till you see it after the Wizard casts his spell.*

**W**ordStar has been around a long time, and its various implementations on most other computers are fairly complete in their use of the computer's functions and in their treatment of the computer's eccentricities. Then, there's the Sanyo version. For example, WordStar users can only take advantage of 10 of the 550/555's 20 function keys. The NUM LOCK key is almost useless, since a bug in WordStar spews out a string of garbage when you press it which toggles the "insert" mode, among other things. Changing the menu and text colors involves wading through WSCOLOR, and changing the function key presets requires INSTALL (which most people would rather forget they own), and leaves the function key descriptions on the screen's bottom line confusingly unchanged. In addition, the generic MS-DOS version of WordStar shipped with the 550/555 fails to take full advantage of the screen routines in the Sanyo's DOS, making the already-slow screen updates nearly excruciating during line inserts and deletes.

The solution to all of this is *WizStar*, a BASIC program that can drastically improve your existing copy of WordStar 3.3. Besides fixing the NUM LOCK bug and correcting the screen oversights, *WizStar* also expands the function key definitions to include all 20 available keys. The descriptions of all 20 on the bottom of the screen can be modified

to suit your tastes — you can even change their colors (never before possible!). Menu and text colors (both foreground and background) can be easily and quickly changed. There is also an option to reconfigure the BACKSPACE and INS/DEL keys to match their functions while in Sanyo BASIC. And best of all, that annoying MicroPro licensing agreement you have to sit through every time WordStar starts is eliminated! (The copyright notice, of course, is left intact.)

Type in the program listing and you're ready to go. Be especially careful with the patch routines and their DATA statements in lines 700 to 850. After you RUN the program, you'll need to enter the name of your WordStar file (best use a backup copy, just in case). The default file name is WS.COM, so if *WizStar* is on the same drive as your WordStar file and has not been renamed, you can just hit the RETURN key at the prompt. If you have a WS.COM file on another disk, just enter the drive spec, such as B:. If you have renamed WordStar, type in the new name (don't forget the .COM extension). When the file is found by *WizStar*, it checks to see if the *WizStar* patches have already been made. If they have not, you will see three different messages as the command description line and function key definition table are expanded and the patches are installed.

When the loading and patching is

completed, the screen clears and you will see the *WizStar* main display. The function key names are displayed using the current menu color in the left-hand column. The definitions for the keys are shown next, using the current text color. The right-hand column shows the descriptions that will appear at the bottom of the screen, in their current colors. A single line near the bottom echoes your current color and backspace choices, and the menu line at the bottom edge shows the available commands.

**T**o change keys PF1 to PF5, just press the key you wish to change. For PF6 to PF10, hold down the SHIFT key and press the proper function key. For PF11 to PF15, hold down the CTRL key and press the function key. For PF16 to PF20, hold down both the SHIFT and CTRL keys and press the function key. Once the proper key is selected, press 'T' to change the text (the actual keystrokes entered when the key is pressed), or 'D' to change the description. You can also press ESC if you've selected the wrong key. Both text and description are limited to six characters. Control characters may be entered into key texts by holding down the CTRL key while pressing the proper letter. You can enter a RETURN into a text by using CTRL-M. Descriptions are limited to printable ASCII characters only. Use BACKSPACE (the dark gray left-arrow key, next to INS/DEL) to erase





# WIZSTAR

## POLISHING A CLASSIC

mistakes, and press RETURN when you're finished. ESC will abort any text or description change in progress.

Changing the screen colors is even easier — just press the letter corresponding to the color block you wish to change. Use an uppercase letter (such as 'M') to change the foreground color of the block, and a lowercase letter (like 't') to change the background color. The descriptions are printed using two different color sets — one for the numbers (one through 10) printed next to the descriptions, and one for the descriptions themselves. Whenever a color change is selected, the "Redraw" bar on the color line will change to inverse video, indicating that the main screen display colors do not match your newly selected colors. To redraw the screen in your new colors, press 'R'.

Pressing 'B' toggles between the two backspace options — with the "left arrow" option, the BACKSPACE key duplicates the left arrow on the numeric keypad, and DEL gives you a destructive backspace. With the "destructive backspace" option selected, the BACKSPACE key becomes the destructive backspace, while the DEL key deletes the character at the cursor (like the CTRL-G command).

When you've finally got *WordStar* the way you want it, press ESC from the main command line. *WizStar* will finish writing your changes to the disk file, clear the screen, and return you to the BASIC "Ready" prompt. Trying

out your new version of *WordStar*, the first thing you'll notice (besides the *WizStar* message) is the quicker start-up time caused by the elimination of the licensing agreement. One extra line has been stolen from the bottom of the screen for the additional function key descriptions, which will be in your selected colors (as will the menus and text). You'll also notice that the NUM LOCK key is now completely supported, and that inserting or deleting a line in the middle of the screen is much, much faster than before. INSTALL can still be used to change the first 10 function key definitions and other *WordStar* parameters (such as printer codes, start up defaults, and so on). You can also continue to use WSCOLOR to change the menu and text colors if you really want to.

Finally, a couple of technical notes for those who may have previously patched the *WordStar* code. The *WizStar* modifications are completely compatible with the patches necessary to implement *CorrectStar* on the 550/555. *WizStar* uses the MORPAT area from 2E0 to 35C Hex for the improved screen driver, which will replace the *Microcomputing* screen patch by Richard Kruse, if it is installed. This is necessary, since the previous patch did not allow for changes in screen size, while the *WizStar* patch does. The only other section of code used is the

licensing agreement text, which is replaced by the expanded function key table and description lines. Any patches to *WordStar* which use other areas of the code, and which are faithful to the parameters in the ABSVAR section, should work with *WizStar*.

For a copy of *WizStar* on disk, send a blank disk and \$5 for shipping, handling and postage to:

Tri-Mike Network East  
33 Virginia Drive #22  
Monroe, MI 48161



---

(J. Weaver Jr. is a free-lance computer programmer, consultant and author. His recent works for the Sanyo 550/555 include *Mi-Term*, *Solitaire*, *Maz* and *Cornerman*. He is also the National Recording Secretary of CHART [Computer Hobbyists Against Raiders and Thieves], a national organization dedicated to the legal and ethical use of computer technology. He can be reached through CompuServe [71446,1362], MCI Mail [FactProg], or at WH Enterprises, 859 Winston, Monroe, MI 40161; 313-241-WHWH.)

---



## WizStar Routines

40- 50	Start up
60	Read in assembler routine (keyboard scan)
70- 80	Set pointers to <i>WordStar</i> file
90-110	Get filename, open file
120-130	Get color specs from file
140-170	Print main screen
180	Get keyboard byte, jump to subroutines
190-260	Color change routines
270-290	'T' or 'D' select
300-340	Text entry routine
350	Save new text to disk file
360-400	Description entry routine
410-420	Save new description to disk file
430-440	Save colors to disk file
450	Clear keyboard buffer, end program
460-530	Print function key data line
540-560	Print character (^ for control characters)
570	Set colors
580	Change foreground color
590	Change background color
600	Wait for recognized keystroke
610	Clear bottom screen line
620-630	Move command description line
640-650	Install patches in disk file
660-680	Move function key table
690	Patch data read routine
700-750	Data for patches, assembler routine

CRMESS	Pointer to copyright message
ERAEOL	Pointer to "erase to end of line" pointer
F	Disk file offset
FUNTAB	Pointer to new function key table
HITE	Pointer to screen height variable
II, IO	Disk buffer variables
INAM	Name of <i>WordStar</i> disk file
LFNTAB	Pointer to pointer to FUNTAB
LINDEL	Pointer to "line delete" pointer
LININS	Pointer to "line insert" pointer
MENU	Menu color
MORPAT	Pointer to patch area
NCOL	Number color
NUMBER	Pointer to description numbers color
OLDCOM	Pointer to original command line
OLDFUN	Pointer to original function table location
PATCAL	Pointer to call to BIOS patch
PCMLIN	Pointer to "print command line" routine
PF1-PF5	Flags for print routines
PTTL	Pointer to "print title" routine
RDFTAB	Pointer to "function table search" routine
SCRCAL	Pointer to "clear screen" routine
TCOL	Description color
TEXT	Text color
TXT	Pointer to description text color
V	Return from assembly keyboard routine
VOFF	Pointer to text color variable
VON	Pointer to menu color variable
Z	Key number pressed

## WizStar Variables

### Arrays

C	Used to transfer command description line
K	Keystroke codes

### Variables

A, B, C, I	General purpose
C1	Foreground color
C2	Background color
COMLIN	Pointer to command description lines



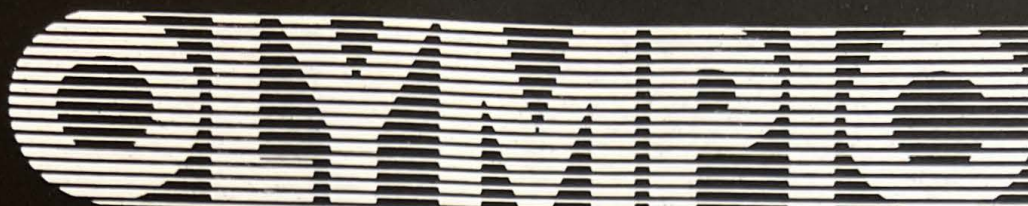
**SERIAL BOARD \$44.<sup>95</sup>**  
(SPECIAL PURCHASE)

**MEMORY 64K \$29.<sup>95</sup> / 128K \$57.<sup>95</sup>**  
4164 DRAMS - 150 nSEC

+ \$2.50 S & H - VISA & MASTERCARD add 3% - GEORGIA ADDRESSES add 3%

**MICRO-G** P.O. BOX 102  
DULUTH, GA. 30136 **(404)476-0586**





## EDUCATIONAL SOFTWARE

### FUN WITH LEARNING

At last, a learning program designed especially for children 4 to 8 years of age. Watch your children spend hours learning about shapes and solving problems. Fun graphics, easy to use design. Have fun with learning. \$29.95



### MATH CASTLE

Protect your castle from the attacks of the alien flying saucer using arithmetic. Answering the math problems correctly gives you the ammunition you need to save your castle and shoot down the enemy. \$29.95

### MS-DOS COMPATIBLE BUSINESS SOFTWARE

#### OES INVENTORY

Designed for ease of use while still providing many features. Automatic reorder list, turnover, last date sold. Holds 1250-2800 accounts. Cash register function prints receipts, sales totals, salesperson's commission and 9 departments. Calculates LIFO, FIFO or Weighted Cost methods of inventory control. Computes Cost of Goods Sold. \$99.95

#### OES ACCOUNTS RECEIVABLE

Complete billing system. Prints statements of account on computer or preprinted forms, ages accounts, finance rate chart, minimum payment chart. Holds up to 500 accounts. Complete audit trail is provided for safety. Integrates with the Order Entry and General Ledger programs to provide maximum efficiency and auto balance transfer. \$99.95

#### OES ORDER ENTRY

Invoicing with computer or preprinted forms. Integrates with the Inventory and Receivable programs to provide a complete sales system. Sales Journal records daily sales, Cost of Goods Sold and the Gross Profit Margin. Automatic Back Order list. \$99.95

#### OES GENERAL LEDGER

Income Statement and Balance Sheet. Holds 500 accounts. Accommodates one or several divisions or companies. Audit trail. Trial balance. Integrates with Accounts Receivable, Accounts Payable and Order Entry programs. Chart of Accounts. Easy to use and set up. \$99.95

#### OES ACCOUNTS PAYABLE

Tracks one-time and recurring payables. Holds up to 500 accounts. Integrates with General Ledger. Prints checks; you set the format. An optional voucher system is included. Menu driven. \$99.95

#### OES PAYROLL

Computes payroll for up to 100 employees. Printer required. Prints checks and employee pay slips. Computes local, state and federal taxes for any pay period. Salaried, hourly or piece work pay rates. Each employee has a file with employment information. \$99.95

#### MONEY ANALYSIS

Two amortization calculations. Mortgage analysis. Interest on savings. Installment payments. Great for real estate investors or anyone who needs to calculate payments. Menu driven and easy to use. \$39.95

#### POSTMASTER II

Complete mailing list. Easy to use. Up to 1600 names may be stored using a double drive system. Sorts by name or zip code. Formats labels for any size. Great for computer rolex cards. These and other features make this a great mailing program. \$49.95

#### APPOINTMENT BOOK

Plan appointments from now until 1999 with this program. Excellent graphic calendar for each month. Print out a list of appointments for each day. Data disk included. Great for work or home use. \$39.95

#### FINANCE MANAGER

Works like an accounts payable program, but for the home. Keeps track of items you want to include for your taxes. Program also comes with a graphic calculator and budget helper functions. \$39.95

### GAME SOFTWARE

#### TRIVIA MANIA

The hottest new trend in games has gone computer! Several different trivia disks are available. Fun for the whole family. \$39.95

#### FLYBOY

With only 9 minutes of fuel left, you must land your aircraft safely. Graphic instrument panel. Pilot's license not required. \$39.95

#### BACKGAMMON

Plays just like the real thing. Graphic playing cards make this a very colorful game. There is never a boring minute with Black Jack. \$29.95

### EDUCATIONAL SOFTWARE

#### BYTE BUSTERS

You are the "Byte Buster." Your mission is to clear all of the "Bytes" from the maze before the "Nybbles" put the bite on you. \$29.95

#### BLACK JACK

A fun strategy game with several skill levels. Play the computer or another person. Watch the computer play itself to learn. \$29.95

#### TOUCH SKILLS

A complete typing tutor for the beginning to intermediate typist. Typing drills, a graphic keyboard and game are included. \$39.95

#### BODY SYSTEMS

Skeletal, respiratory, digestive and circulatory systems are covered. A quiz and review are included. Excellent graphics. \$39.95

#### STATES & CAPITALS

Learn each of the fifty United States by their shape. Learn the capitals also. A fun program for learning about the U.S. \$29.95

#### INCHWORM

A learning game for children, a strategy game for adults. Guide your long-growing inchworm through different learning situations. \$29.95

#### SPELLING BEE

Learn to spell with your own list of words or use the computer's list of over 500 words of varying length. Make spelling fun to learn. \$39.95

#### FLASH CARD

Flash Card will sharpen your math skills in addition, subtraction, multiplication & division. Solve problems right on the screen. \$29.95

CALL: (206) 874-4044 OR (206) 952-4114



**OLYMPIC**  
EDUCATIONAL SOFTWARE

1220 S. 356TH ST., SUITE 208W  
P.O. BOX 3679  
FEDERAL WAY, WA 98063

WE ACCEPT MASTERCARD, VISA, AND AMERICAN EXPRESS (INCLUDE CARD # AND EXPIRATION DATE), CHECK, C.O.D. OR MONEY ORDER. ALL ORDERS ARE SHIPPED UPS. FREE OF CHARGE. PLEASE ALLOW 4 DAYS TO RECEIVE YOUR ORDER. WASHINGTON STATE RESIDENTS, PLEASE ADD 7.8% SALES TAX. DEALER INQUIRIES INVITED. PROGRAM SUBMISSIONS WELCOME.



**The listing: WIZSTAR.BAS**

```

10 ' WIZSTAR.BAS - Copyright (C) 1985 by J. Weaver Jr.
20 ' Permission granted to copy for personal use ONLY
30 '
40 COLOR 2,0:CLS:CLEAR 2:DEFINT A-Z:DEFSTR I:DIM K(33)
50 PRINT "WizStar":PRINT :PRINT "Copyright (c) 1985 by J. Weaver Jr."
60 DEF SEG=SEG(4):FOR A=0 TO 6:READ I:POKE A,VAL("&H"+I):NEXT:DEF USR(A)=0:FOR A
=1 TO 33:READ I:K(A)=VAL("&H"+I):NEXT
70 F=255:HTE=&H248-F:ERAEOL=&H26D-F:LINDEL=&H274-F:LININS=&H27B-F:VON=&H284-F:V
OFF=&H28B-F:NISUB=&H2A5-F:MORPAT=&H2E0-F:PATCH2=&H32B-F:PATCH3=&H340-F:BS1=&H49B
-F:DEL1=&H53A-F:OLDFUN=&H66E-F:BS2=&H6E6-F:DEL2=&H71C-F
80 LFNTAB=&H2437-F:RDFTAB=&H244D-F:PATCAL=&H2E4C-F:PTTL=&H4D3E-F:SCRCAL=&H4E7E-F
:PDSLIN=&H5041-F:OLDDDES=&H5067-F:DESLIN=&H5070-F:NUMBER=DESLIN+1:TXT=DESLIN+3:FU
NTAB=&H51B1-F:CRMESS=&H520C-F
90 PRINT :INPUT "Name of WordStar file to modify (CR=WS.COM) ";INAM:IF INAM="" O
R (LEN(INAM)=2 AND RIGHT$(INAM,1)=":") THEN INAM=INAM+"WS.COM"
100 ON ERROR GOTO 110:OPEN"i",1,INAM:CLOSE:OPEN"r",1,INAM,1:FIELD 1,1 AS II:IF L
OF(1)<>21376 THEN CLOSE:PRINT "Not a WordStar 3.30 file":BEEP:GOTO 90 ELSE 120
110 IF ERR=64 THEN PRINT "Bad file name":BEEP:RESUME 90 ELSE IF ERR=53 THEN PRIN
T "File not found.":BEEP:RESUME 90
120 ON ERROR GOTO 0:PRINT :GET 1,VON:MENU=ASC(II):GET 1,VOFF:TEXT=ASC(II):GET 1,
LFNTAB+1:IF ASC(II)=0 THEN GOSUB 700:GOTO 140 ELSE PRINT "Reinstall patches (Y,
N) ? ";
130 V=USR(0):IF V=&H1559 OR V=&H1579 THEN PRINT "Y":PRINT :GOSUB 730 ELSE IF V=&
H314E OR V=&H316E THEN PRINT "N" ELSE 130
140 GET 1,NUMBER:NCOL=ASC(II):GET 1,TXT:TCOL=ASC(II):GET 1,BS1:BS=INT(ASC(II)/15
0):CLS:LOCATE 1,1,0:PRINT " Key","Text","Description":LOCATE 22,1:PRINT CHR$(218

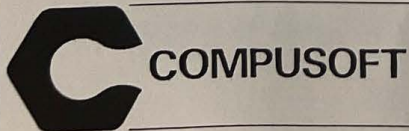
```

## Canadian Sanyo owners and dealers



Compusoft manufactures and distributes  
Michtron software programs  
in Canada.

We fully support the  
Sanyo 550 and 555 series  
of computers. Please write for  
your FREE catalog and newsletter.



P.O. BOX 11659 EDMONTON, ALBERTA T5J 3K8. (403) 423 1175

1-800-437-4757

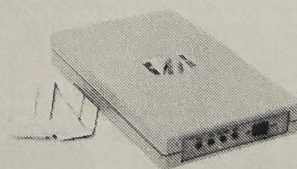
EXT. 241

## Communicate

with your Sanyo  
Computer

Send for our catalog

- Modems
- Terminal Software



300/1200 BAUD  
INTELLIGENT MODEM

Send large SASE  
for current list of  
IBM software that  
runs on the Sanyo  
550 series.

...Features Autodial and Auto Answer  
...Hayes™ compatible.

**\$279.<sup>95</sup>**

Cable included



Tech. Support 701-281-0549  
24 HOUR BBS 701-281-0233

Box 683  
West Fargo, ND 58078







```

340 GOSUB 530:PF2=PF20:PF3=PF30:PF5=0:GOTO 210
350 GOSUB 690:PRINT "Enter new text - press CR when done, or ESC to abort.";I="
":LOCATE A+2,49:COLOR 7,1:PRINT SPACE$(6)
360 V=USR(0):IF V=&H11B THEN 340 ELSE IF V=&H1C0D THEN 400 ELSE IF V<>&HE08 THEN
370 ELSE IF I="" THEN BEEP:GOTO 360 ELSE I=LEFT$(I,LEN(I)-1):GOTO 380
370 IF LEN(I)=6 THEN BEEP:GOTO 360 ELSE IF V/256=INT(V/256) THEN BEEP:GOTO 360 E
LSE I=I+CHR$(V AND 255)
380 LOCATE A+2,49:COLOR 7,1:FOR B=1 TO LEN(I):C=ASC(MID$(I,B,1)):GOSUB 630:NEXT:
IF LEN(I)<6 THEN FOR B=LEN(I)+1 TO 6:PRINT " ";:NEXT
390 COLOR 2,0:PRINT " ";:GOTO 360
400 PF2=0:IF A<10 THEN B=A*9+OLDFUN+2 ELSE B=(A-10)*9+FUNTAB+2
410 LSET II=CHR$(LEN(I)):PUT 1,B:LSET II="*":FOR C=1 TO 6:PUT 1,B+C:NEXT:IF I>"
THEN FOR C=1 TO LEN(I):LSET II=MID$(I,C,1):PUT 1,B+C:NEXT:GOTO 340 ELSE 340
420 GOSUB 690:PRINT "Enter new description - press CR when done, or ESC to abort
.";I="":LOCATE A+2,49:COLOR 7,1:PRINT SPACE$(6)
430 V=USR(0):IF V=&H11B THEN 340 ELSE IF V=&H1C0D THEN 470 ELSE IF V<>&HE08 THEN
440 ELSE IF I="" THEN BEEP:GOTO 430 ELSE I=LEFT$(I,LEN(I)-1):GOTO 450
440 IF LEN(I)=6 THEN BEEP:GOTO 430 ELSE IF V/256=INT(V/256) THEN BEEP:GOTO 430 E
LSE V=V AND 255:IF V<32 OR V>127 THEN BEEP:GOTO 430 ELSE I=I+CHR$(V)
450 LOCATE A+2,49:COLOR 7,1:FOR B=1 TO LEN(I):C=ASC(MID$(I,B,1)):GOSUB 630:NEXT:
IF LEN(I)<6 THEN FOR B=LEN(I)+1 TO 6:PRINT " ";:NEXT
460 COLOR 2,0:PRINT " ";:GOTO 430
470 PF3=0:B=A*16+DESLIN:IF A=9 OR A=19 THEN B=B+2
480 LSET II=" ":FOR C=1 TO 6:PUT 1,B+C*2:NEXT:IF I>" THEN FOR C=1 TO LEN(I):LSE
T II=MID$(I,C,1):PUT 1,B+C*2:NEXT:GOTO 340 ELSE 340
490 GOSUB 690:PRINT "Writing changes to "INAM"...":LSET II=CHR$(MENU):PUT 1,VON
:LSET II=CHR$(TEXT):PUT 1,VOFF:LSET II=CHR$(TCOL):FOR A=DESLIN+1 TO DESLIN+319 S
TEP 2:PUT 1,A:NEXT:LSET II=CHR$(NCOL)
500 FOR A=DESLIN+1 TO DESLIN+319 STEP 16:PUT 1,A:NEXT:LSET II=CHR$(2):FOR A=DESL
IN+15 TO DESLIN+319 STEP 16:PUT 1,A:NEXT:LSET II=CHR$(NCOL):PUT 1,DESLIN+147:PUT
1,DESLIN+307:LSET II=CHR$(TCOL):PUT 1,DESLIN+159:PUT 1,DESLIN+319
510 LSET II=CHR$(BS*161+13):PUT 1,BS1:LSET II=CHR$(BS*5+126):PUT 1,BS1+1:LSET II
=CHR$(BS*11+8):PUT 1,BS2:LSET II=CHR$(127-BS*120):PUT 1,DEL1:PUT 1,DEL2
520 IF INKEY$>" THEN 520 ELSE CLOSE:CLS:END
530 IF PF1=0 THEN LOCATE A+2,2:I=STR$(A+1):C=MENU:GOSUB 650:PRINT "PF"RIGHT$(I,L
EN(I)-1);
540 IF PF2=1 THEN 570 ELSE LOCATE A+2,17:C=TEXT:GOSUB 650:IF A<10 THEN GET 1,A*9
+OLDFUN+2 ELSE GET 1,(A-10)*9+FUNTAB+2
550 IF ASC(II)>0 THEN FOR B=1 TO ASC(II):GOSUB 620:NEXT
560 COLOR 2,0:PRINT SPACE$(33-POS);
570 IF PF3=1 THEN 600 ELSE LOCATE A+2,33:B=A*8:IF A=9 OR A=19 THEN B=B+1
580 C=NCOL:GOSUB 650:I=" ":IF A=9 THEN I="1"
590 PRINT I;:GET 1,B*2+DESLIN:PRINT II;:C=TCOL:GOSUB 650:FOR C=B+1 TO B+6:GET 1,
C*2+DESLIN:PRINT II;:NEXT:COLOR 2,0:PRINT SPACE$(49-POS);
600 IF PF5=1 THEN LOCATE A+2,49:COLOR 2,0:PRINT SPACE$(30);
610 RETURN
620 IF A<10 THEN GET 1,A*9+B+OLDFUN+2:C=ASC(II) ELSE GET 1,(A-10)*9+B+FUNTAB+2:C
=ASC(II)
630 IF C<32 THEN PRINT "~"CHR$(C+64); ELSE PRINT CHR$(C);
640 RETURN
650 COLOR C AND 15,(C AND 240)/16:RETURN
660 C1=C AND 15:C2=(C AND 240)/16:C1=(C1+1) AND 7:C=C1+C2*16:RETURN
670 C1=C AND 15:C2=(C AND 240)/16:C2=(C2+1) AND 7:C=C1+C2*16:RETURN
680 V=USR(0):FOR Z=1 TO 33:IF V<>K(Z) THEN NEXT:BEEP:GOTO 680 ELSE RETURN
690 PF4=0:LOCATE 25,1:COLOR 2,0:PRINT SPACE$(79);:LOCATE 25,2:RETURN
700 PRINT "Expanding description line...":I="":FOR A=0 TO 159:GET 1,A+OLDDDES:I=I
+II:NEXT:FOR A=0 TO 159:LSET II=MID$(I,A+1,1):PUT 1,A+DESLIN:NEXT:FOR A=DESLIN+1
61 TO DESLIN+319 STEP 2:PUT 1,A:NEXT
710 LSET II=" ":FOR A=DESLIN+160 TO DESLIN+318 STEP 2:PUT 1,A:NEXT:LSET II=CHR$(

```





```

Ø):PUT 1,DESLIN+32Ø
72Ø PRINT "Expanding function table...":FOR A=Ø TO 9:B=A*9+FUNTAB:LSET II=CHR$(A
+1Ø4):PUT 1,B:PUT 1,B+1:LSET II=CHR$(Ø):PUT 1,B+2:LSET II="*":FOR C=B+3 TO B+8:P
UT 1,C:NEXT C,A:LSET II=CHR$(Ø):PUT 1,FUNTAB+9Ø
73Ø PRINT "Installing patches...":A=HITE:B=1:GOSUB 77Ø:A=ERAEOL:B=2:GOSUB 77Ø:A=
LINDEL:B=2:GOSUB 77Ø:A=LININS:B=2:GOSUB 77Ø:A=NISUB:B=PATCH3-NISUB-F-2:GOSUB 78Ø
:A=MORPAT:B=75:GOSUB 77Ø:A=PATCH2:B=11:GOSUB 77Ø:A=PATCH3:B=3:GOSUB 77Ø
74Ø A=PATCH3+3:B=FUNTAB:GOSUB 78Ø:A=PATCH3+5:B=1Ø:GOSUB 77Ø:A=LFNTAB:B=PATCH2-LF
NTAB-F-2:GOSUB 78Ø:A=RDFTAB:B=7:GOSUB 77Ø:A=PATCAL:B=MORPAT-PATCAL-F-2:GOSUB 78Ø
:A=PTTL-2:B=CRMESS:GOSUB 78Ø:A=PTTL:B=3:GOSUB 77Ø:A=SCRCAL:B=1:GOSUB 77Ø
75Ø A=PDSLIN:B=1:GOSUB 77Ø:A=PDSLIN+1:B=DESLIN:GOSUB 78Ø:A=PDSLIN+3:B=44:GOSUB 7
7Ø:A=CRMESS:B=6Ø:GOSUB 77Ø
76Ø CLOSE:OPEN"r",1,INAM,1:FIELD 1,1 AS II:RETURN
77Ø FOR C=A TO A+B-1:READ I:LSET II=CHR$(VAL("&H"+I)):PUT 1,C:NEXT:RETURN
78Ø B=B+F:C=INT(B/256):LSET II=CHR$(C AND 255):PUT 1,A+1:LSET II=CHR$( (B-C*256)A
ND 255):PUT 1,A:RETURN
79Ø DATA 32,E4,CD,16,89,Ø7,CB
8ØØ DATA Ø11B,3BØØ,3CØØ,3DØØ,3EØØ,3FØØ,4ØØØ,41ØØ,42ØØ,43ØØ,44ØØ,68ØØ,69ØØ,6AØØ,6
BØØ,6CØØ,6DØØ,6EØØ,6FØØ,7ØØØ,71ØØ,324D,326D,1454,1474,314E,316E,2Ø44,2Ø64,1352,1
372,3Ø42,3Ø62
81Ø DATA 17,Ø1,Ø1,Ø1,Ø2,Ø1,Ø3
82Ø DATA 3C,Ø1,74,ØB,3C,Ø2,74,Ø9,3C,Ø3,74,Ø5,E9,63,2B,F6,D8,53,5Ø,B4,Ø3,CD,1Ø,8A
,ØE,49,Ø2,2A,CA,B5,ØØ,9D,78,1F,8A,EE,B1,ØØ,B8,Ø1,Ø7,72,Ø2,B4,Ø6,8B,16,48,Ø2,86,F
2,FE,CE,FE,CA,3A,EE,72,Ø9,8A,ØE,49,Ø2,B5,ØØ,B8,2Ø,Ø9,BB,ØØ,Ø7,CD,1Ø,5B,C3
83Ø DATA E8,1D,21,72,FA,BB,A5,ØØ,E9,15,21,56,57,BE,BF,A5,ØØ,B9,5C,ØØ,F3,A4,5F,5E
,Ø8,CØ,74,D5,38,C4,F9,E8,97,D3,17
84Ø DATA BF,32,D2,8A,36,48,Ø2,33,DB,B9,Ø1,ØØ,B4,Ø2,CD,1Ø,FE,C2,3A,16,49,Ø2,75,Ø4
,32,D2,FE,C6,B4,Ø9,8A,Ø5,ØA,CØ,74,Ø8,47,8A,1D,CD,1Ø,47,EB,EØ,C3
85Ø DATA 2Ø,2Ø,6D,6F,64,69,66,69,65,64,2Ø,62,79,2Ø,57,69,7A,53,74,61,72,2Ø,2D,2Ø
,43,6F,7Ø,79,72,69,67,68,74,2Ø,28,63,29,2Ø,31,39,38,35,2Ø,4A,2E,2Ø,57,65,61,76,6
5,72,2Ø,4A,72,2E,2Ø,2Ø,ØF,ØØ

```



**SANYO 550 OWNERS:** Receive A Diskette With Latest Updates Of Sanyo:

- |                         |                                    |
|-------------------------|------------------------------------|
| 1. User Groups          | 4. Bulletin Boards                 |
| 2. Software For Sanyo   | 5. List of Sanyo Magazine Articles |
| 3. Exchange of Programs | 6. Hardware For Sanyo              |
- (SUPPLIED VIA PUBLIC DOMAIN)

SEND \$6.00 TO:

**DIVERSIFIED COMPUTERS**  
P.O. BOX 1083  
SPRINGFIELD, TN 37172-1083

OR

**DIVERSIFIED COMPUTERS**  
623 RED LANE RD.  
SUITE 104  
BIRMINGHAM, AL 35215  
Phone (205) 836-5049

## LOOK!

Legal Software	General Accounting-Star Software
Thought Works-Hard Disks	Micro Main-Hard Disks
Medical-Medicalus	Accountants-TCS Software
Farmers-Vertical Software	McGraw Hill-Software Publications

SANYO 555-2 W/CRT 30 ONLY 1200.00 + FREIGHT  
SANYO 555-2 W/CRT 36 ONLY 1230.00 + FREIGHT

**DEALER INQUIRES INVITED**

**B-T Distributors**  
P.O. Box 3115  
Carbondale, IL 62902-3115  
(618) 529-5557 (618) 687-3368  
Catalog available upon Request

**(512)  
657-2012**  
Wagner Bros.

## AUTOTYPE FOR THE SANYO COMPUTER

This is a program which allows anyone with the Sanyo computer to add typewriting capability to their computer.

With only two control sequences "to remember" "Q" (to Quit typing) and "C" (to Clear the screen) Autotype is simple to use with a letter quality or dot matrix printer at a fraction of the cost. Also, the only limitations to the style of printing available are those of the printer used.

Why use two different keyboards when you are accustomed to your computer's.

Use Autotype **\$83.77**  
San Antonio, Tx 78247

14008 Nacogdoches

## MEMORY MADNESS

128K Upgrade ..... \$59.00

### IBM TO SANYO

IBM Basica to Sanyo Basic ..... \$34.50  
Unprotect IBM/Sanyo Basic ..... \$29.50  
Additional Commands for Basic ..... \$5.00

**THE SOFTIES**  
P.O. Box 26484  
Minneapolis, MN 55426  
612-593-9857

**DEALER  
INQUIRIES  
WELCOME**



# THE SANYO SYNTHESIZER

From rock to Rachmaninov, when you stroke the keys now, you can get more than numbers and words.



PHOTO BY NEAL C. LAURON

**M**usic combines the sound driver presented in the December, 1984 issue of *SOFT SECTOR* with a menu-driven, graphic and intuitively obvious user interface for creating, saving and playing tunes. You will be free to use your imagination, without the bother of memorizing commands or calculating frequencies.

Tunes are stored in the form of strings in the array `TUN$(Q)`. When it's time to play the tune back, the code at lines 2100 through 2190 "compiles" the information into pitch and duration data which are then passed to the sound driver.

Let's take a short tour through the logic and variables.

## Definitions And Startup

Lines 60 to 120 contain definitions. Lines 140 to 160 place the machine language sound driver object code (data at Line 1890) into memory at location `&H100`. The pitch data at lines 1900 through 1960 is read into the array `NOTES(A)`. Lines 190 to 290 ask for a filename and open the proper file where the data of `TUN$(Q)` can be stored. Lines 310 through 350 draw the screen, calling a subroutine at Line 1740.

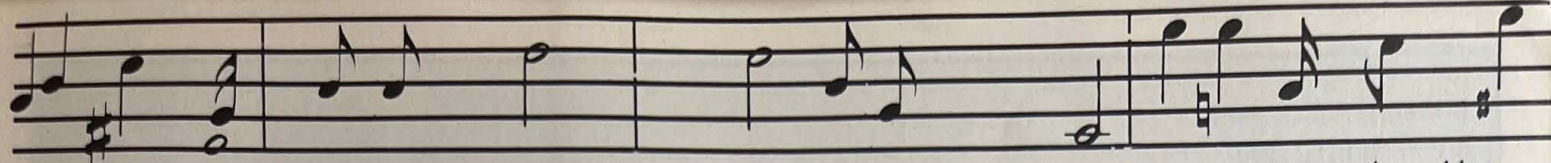
## Panels

The eight panels and keyboard are called `PLAYBOX`, `QUITBOX`, `NAMEBOX`, `STOREBOX`, `NOTEBOX`, `HELPBOX`, `VALBOX`, `LENGTHBOX` and `TEMPO BOX`. Parallel structured code from Line 370

*(Marcia L. Peters first became involved with computers in 1972. Before her Sanyo, she owned an early TRS-80 Model I. She travels frequently in her job at Telex Data Systems supporting 3270 SNA and BSC telecommunications software. She holds a music degree from Swarthmore College. The author may be contacted at 141 Woodbine Street, Providence, RI 02906; 401-273-4467.)*

By Marcia L. Peters





through 1300 contains the logic which processes keystrokes and enables you to move from one panel to another, as well as to process keystrokes having a function for any given highlighted box. A one-line subroutine at Line 1870 receives keystrokes and returns their ASCII codes. The ASCII values of the arrows, tab, backspace and ENTER keys are given on Line 120.

Whenever you move to a new panel, a subroutine at 1430 is passed two parameters: NEWBOX, the number of the new panel to be highlighted, and OLDBOX, the number of the prior panel, so it may be "unhighlighted."

### Keyboard Picture

We draw the keyboard at lines 1770 through 1800 during start-up. Then whenever we go to the keyboard panel, the NEWBOX subroutine at 1430 highlights it by drawing a box around the keyboard.

### Follow The Bouncing Ball

On the keyboard, a dot shows which note we're currently pointing to. The left and right arrow keys move the dot chromatically (by half-tones; i.e., from C to C#). The tab and backspace keys jump one octave up or down.

The subroutine at lines 2240 to 2540 draws the "bouncing ball" on the keyboard. I could have used BASIC's CIRCLE command with PAINT to draw the bouncing ball, but for speed chose PUT instead. Because the dot arrays BDOT, WDOT, BKEY and WKEY are very small (only 31 words each), I hope that Sanyo users with less than 256K will not have difficulties with PUT and GET. During initialization the dots were drawn for the first time, then GET transferred the picture data into arrays at lines 2560 through 2620.

### File Error Handling

If an error such as "Disk full" or "File not found" occurs, the code at lines 2830 to 2910 will display an error message without bumping you out of the program. You can input a corrected filename.

### Data Structure

The tune in TUN\$(Q) is in the form of a list of short strings. Notes are

numbers one through 84. Tempo changes are in the form 'Tn' where 'n' is a number between 40 and 300 beats per minute. Musicians, this is a metronome marking. Note values are 'NT' (thirty-second note) through 'NW' (whole note). Lengths are stored as 'Ln' where 'n' is a length from one through 16. In other words, if the note value is 'NQ' (quarter notes) and length equals three, the resulting duration will be a dotted half note — three beats.

### Editing Tunes

Editing and stepping through the tune are enhancements that were in my original design for this program. However, with my busy schedule, *Music* might not be published for months if I spent time to add those features. I hope readers will be inspired to enhance MUSIC.BAS and share their work with all of us.

Tune data can, of course, be edited using *WordStar* or EDLIN and played back again through MUSIC.BAS. Also, notes entered in error can be deleted with the DELETE key.

### Portable Tunes

Adding tunes to a game program, for example, can be done in two ways. The longer, but easier, way requires incorporating most of lines 80 to 170, the data at lines 1890 to 1960, and the music "compiler" from lines 1980 through 2180 into the target program.

The shorter way, which will require a little programming, would be to compile tunes and save the arrays F(X) and D(X) (frequencies and durations), then run those arrays directly through the sound driver.

### Technical Notes

On my Sanyo, the sound was much too loud. Although I first disconnected the speaker and later eliminated the BASIC beep through software, when I started developing various sound routines, I needed to keep it functional. Eventually, I cut one speaker wire and soldered a 100-ohm resistor in series to attenuate the sound to a desirable level. If you do this, be sure to insulate the resistor leads so they won't short to the circuit board. Also, I recommend placing paper over the circuit board

while working to avoid dropping solder onto it.

### How Can I Tune It?

With this program, you can't. As low as just two octaves above middle C, we approach a limit where break is being toggled less than 30 times for each note. The USART (sound generator) is being clocked at 1200 Baud. Accordingly, the higher the frequency, the less precise the pitch.

### A Novel Method For Sanyo Sound

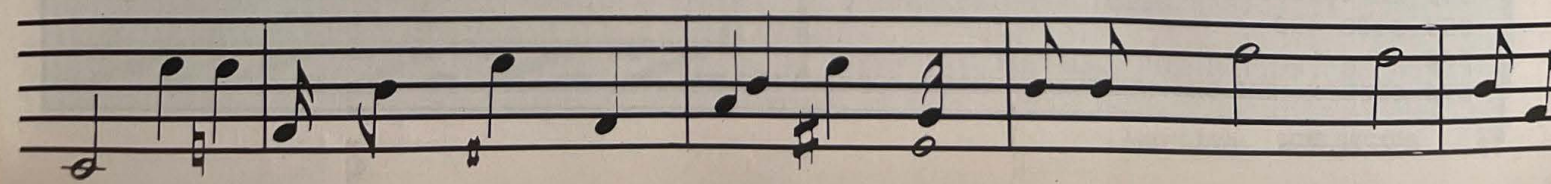
There is another method of making sound which is highly accurate, but so far only works well when I run the routine from DEBUG, not from BASIC.

Our Sanyo 550/555s contain two USART chips. The one at IO addresses 28H and 2AH is reserved for serial communications through the RS-232 port. The other, at ports 38H and 3AH, is used as a receiver of serial keyboard data and as a transmitter for making sound through the speaker.

The Intel 8251A is a Universal Synchronous/Asynchronous Transmitter/Receiver (USART). The key word here is "synchronous." As used by the keyboard, the chip is limited to asynchronous, 1200 Baud operation with a start bit, parity and two stop bits per byte transmitted. The input clock frequency is divided by 64 to yield a 1200 Baud rate. However, whenever we need to make a musical sound, we can reinitialize the chip as a synchronous, eight-bit transmitter, with no parity or stop bits. The basic clock frequency is established by Counter 0 of the 8253 Programmable Interval Timer. In synchronous mode, the input frequency is not divided by 64. Therefore, we have a basic frequency of 78.6 KHz to work with — well above the 18 to 20 KHz limit of audibility.

A minor drawback is that the 8251 USART must again be reinitialized after use so it can talk with the keyboard. This presents a major hurdle during debugging — every bug necessitated a system reset to bring the keyboard back to life!

A minimal assembler program demonstrating this latter method of sound generation is included for those who wish to experiment.





Listing 1: MUSIC.BAS

```

10 ' MUSIC.BAS
20 ' by MARCIA L. PETERS, 141 Woodbine St., Providence, RI 02906
30 ' copyright (C) 1985 by Marcia L. Peters
40 ' permission granted for personal use only
50 '
60 '----- definitions & startup
70 '
80 CLEAR 20: DEFINT A-Z: RESTORE 1890: ON ERROR GOTO 2830
90 DIM NOTES(84),F(1000),D(1000),TUN$(5000),WDOT(31),BDOT(31),WKEY(31),BKEY(31)
100 PLAYBOX=1: QUITBOX=2: NAMEBOX=3: STOREBOX=4: HELPBOX=5: NOTEBOX=6: VALBOX=7
110 LENGTHBOX=8: TEMPOBOX=9: V$="TSEQHW": MAX=73: SPEED=1200: NUL$=STRING$(80," ")
120 ENTER=13: TABB=9: DEL=127: INSERT=18: BACKSP=8: UP=30: DOWN=31: LEFT=28: RIGHT=29
130 '
140 '----- set up machine language music driver and note data
150 '
160 DEF SEG=SEG(4):FOR A=&H100 TO &H13B:READ I$:POKE A,VAL("&H"+I$):NEXT
170 GOSUB 2550: RESTORE 1900: FOR A=1 TO 7*12: READ NOTES(A):NEXT
180 '
190 '----- mess with files
200 '
210 PRINT "Will this be a NEW tune or an EXISTING one? ": GOSUB 1860
220 IF I$<>"N" AND I$<>"n" THEN 230 ELSE GOSUB 2780: OPEN "O", #1, FILE$+".BAK":
CLOSE: GOTO 320
230 PRINT "Music files on this disk are:":PRINT :FILES "*.MUS":GOSUB 2780
240 OPEN "I",#1,FILE$+".MUS": Q=0
250 IF EOF(1) THEN 260 ELSE Q=Q+1: INPUT #1,TUN$(Q): GOTO 250
260 CLOSE: KILL FILE$+".BAK"
270 NAME FILE$+".MUS" AS FILE$+".BAK": GOTO 300
280 GOSUB 2780
290 '
300 '----- make it pretty
310 CLS
320 FOR A=1 TO 5:LINE(0,A*3)-(639,A*3),1:LINE(0,A*3+172)-(639,A*3+172),1:NEXT
330 SYMBOL(220,0),"MUSIC",4,2,4
340 GOSUB 1740: GOTO 400:' draw initial screen
350 '
360 '----- logic for screen panels and keystrokes
370 '
380 '
390 OLDBOX=NEWBOX: NEWBOX=PLAYBOX: GOSUB 1430
400 GOSUB 1860
410 IF I<>ENTER THEN 420 ELSE GOSUB 2020: GOTO 400
420 IF I=TABB THEN 480
430 IF I=BACKSP THEN 760
440 IF I=DOWN THEN 840
450 IF I=UP THEN 960
460 GOTO 400
470 '-----
480 OLDBOX=NEWBOX: NEWBOX=QUITBOX: GOSUB 1430
490 GOSUB 1860
500 IF I=ENTER THEN GOSUB 1310
510 IF I=TABB THEN 570
520 IF I=BACKSP THEN 390
530 IF I=UP THEN 960
540 IF I=DOWN THEN 840 ELSE 490
550 GOTO 490
560 '-----
570 OLDBOX=NEWBOX: NEWBOX=NAMEBOX:GOSUB 1430

```






```

580 GOSUB 1860
590 IF I<>ENTER THEN 600 ELSE GOSUB 1330
600 IF I=TABB THEN 650
610 IF I=BACKSP THEN 480
620 IF I=UP THEN 960
630 IF I=DOWN THEN 840 ELSE 580
640 '-----
650 OLDBOX=NEWBOX: NEWBOX=STOREBOX:GOSUB 1430
660 GOSUB 1860
670 IF I<>ENTER THEN 710 ELSE OPEN "O",#1,FILE$+".MUS": FOR A=1 TO Q: WRITE #1,
TUN$(A): NEXT :CLOSE
680 LOCATE 19,1,0: PRINT FILE$+".MUS stored. Will you Continue editing,"
690 PRINT "Quit, begin a New tune, or work with an Existing tune?": GOSUB 186
0
695 IF I$="Q" OR I$="q" THEN END
700 IF I$="C" OR I$="c" THEN GOSUB 2740: GOTO 710 ELSE Q=0: GOTO 200
710 IF I=TABB THEN 760
720 IF I=BACKSP THEN 570
730 IF I=UP THEN 960
740 IF I=DOWN THEN 840 ELSE 660
750 '-----
760 OLDBOX=NEWBOX: NEWBOX=HELPBOX:GOSUB 1430
770 GOSUB 1860
780 IF I=ENTER THEN GOSUB 1400
790 IF I=TABB THEN 390
800 IF I=BACKSP THEN 650
810 IF I=UP THEN 960
820 IF I=DOWN THEN 840 ELSE 770

```



## TANNER and the JUNGLE TEMPLE

TOP QUALITY ADVENTURE GAME WITH NINE LEVEL DUNGEON/MAZE FOR SANYO 550/555 FILLED WITH MONSTERS AND PITFALLS TO CATCH THE UNWARY. A CRYPTIC NOTE IS YOUR ONLY CLUE TO UNRAVEL THE HIDDEN WAYS AND FIND THE TREASURE, GUARDED SINCE THE DAWN OF TIME. YOUR WITS AND CUNNING ARE ALL THAT STAND TWIXT YOU AND SUDDEN DEATH. IF YOU ARE LUCKY, YOU MAY PICK UP ENOUGH MONEY TO BUY WEAPONS AT THE GENERAL STORE. IF NOT, YOU CAN ALWAYS TRY AGAIN.

AVAILABLE NOW!!!! ORDER TODAY!!!!

WRITTEN IN PASCAL- RUNS ON ANY 550 SERIES COMPUTER WITH ONE DRIVE AND MONITOR.

ORDER C.O.D. OR SEND MONEY ORDER OR CERTIFIED CHECK FOR \$25.00 TO:

THE MOONWOLF GAME COMPANY  
1480 F TERRELL MILL ROAD (SUITE 712)  
MARIETTA, GEORGIA 30067

## TAX TEMPLATES FOR CALCSTAR™

\$29.95 for 14 tax forms

Calculate Forms:

1040, 1040A, 1040EZ, A, B, C, E, G,  
SE, W, 2441, 4562, 3903, 2106

**30 Day Money Back Guarantee**  
**I TH, Inc. Barry Weintraub Esq.**

7700 Leesburg Pike  
Falls Church VA 22043  
(703) 442-8330

**DEALER INQUIRIES WELCOME**

### SPECTRUM SOLUTIONS

### DISKS!!!!

800K DRIVE...\$159	SPECTRUM BULK DISKS
360K DRIVE...\$129	SS/DD (QTY 30)...\$32
180K DRIVE...\$ 69	DS/DD (QTY 30)...\$37
128K (150NS)...\$ 64	30 OR MORE.....CALL
8087 APU.....\$149	
VIDEO BOARD...\$175	(513) 236-7334
JOYSTICK.....\$ 18	
Q-BREAKER(UNPROTECTS BASIC)...\$ 20	

7029B TAYLORSVILLE RD, DAYTON, OH 45424



```

830 '-----
840 OLDBOX=NEWBOX: NEWBOX=NOTEBOX: GOSUB 1430
850 GOSUB 1860
860 IF I=ENTER THEN N$=STR$(PITCH): GOSUB 2220: GOSUB 3000
870 IF I=DEL THEN IF Q<2 THEN 890 ELSE Q=Q-1
880 'IF I=INS THEN GOSUB 2130
890 IF I<>TABB THEN 900 ELSE IF PITCH>MAX-13 THEN 900 ELSE OLD=1: GOSUB 2250:
    PITCH=PITCH+12: GOSUB 2250
900 IF I<>BACKSP THEN 910 ELSE IF PITCH<13 THEN 910 ELSE OLD=1: GOSUB 2250:
    PITCH=PITCH-12: GOSUB 2250
910 IF I<>RIGHT THEN 920 ELSE IF PITCH>MAX-1 THEN 920 ELSE OLD=1: GOSUB 2250:
    PITCH=PITCH+1: GOSUB 2250
920 IF I<>LEFT THEN 930 ELSE IF PITCH<2 THEN 930 ELSE OLD=1: GOSUB 2250:
    PITCH=PITCH-1: GOSUB 2250
930 IF I=UP THEN 390
940 IF I=DOWN THEN 960 ELSE 850
950 '-----
960 OLDBOX=NEWBOX: NEWBOX=VALBOX:GOSUB 1430
970 GOSUB 1860
980 IF I=ENTER THEN N$="V"+MID$(V$,V,1):GOSUB 2220
990 IF I<>RIGHT THEN 1010 ELSE V=V+1: IF V>6 THEN V=6
1000 GOTO 1020
1010 IF I<>LEFT THEN 1030 ELSE V=V-1: IF V<1 THEN V=1
1020 LOCATE 23,2,0:PRINT "VALUE= ";MID$(V$,V,1);
1030 IF I=TABB THEN 1080
1040 IF I=BACKSP THEN 1200
1050 IF I=UP THEN 840
1060 IF I=DOWN THEN 390 ELSE 970
1070 '-----
1080 OLDBOX=NEWBOX: NEWBOX=LENGTHBOX:GOSUB 1430
1090 GOSUB 1860
1100 IF I<>RIGHT THEN 1130 ELSE L=L+1: IF L>16 THEN L=16
1110 GOTO 1140
1120 IF I=ENTER THEN N$="L"+STR$(L):GOSUB 2220
1130 IF I<>LEFT THEN 1150 ELSE L=L-1: IF L<1 THEN L=1
1140 LOCATE 23,17,0:PRINT "LENGTH="L;
1150 IF I=TABB THEN 1200
1160 IF I=BACKSP THEN 960
1170 IF I=UP THEN 840
1180 IF I=DOWN THEN 390 ELSE 1090
1190 '-----
1200 OLDBOX=NEWBOX: NEWBOX=TEMPOBOX:GOSUB 1430
1210 GOSUB 1860
1220 IF I=ENTER THEN N$="T"+STR$(NUM):GOSUB 2220
1230 IF I<>RIGHT THEN 1240 ELSE IF NUM>299 THEN 1270 ELSE NUM=NUM+1:GOTO 1260
1240 IF I<>LEFT THEN 1270
1250 IF NUM<41 THEN 1270 ELSE NUM=NUM-1
1260 LOCATE 23,32,0:PRINT "TEMPO="NUM;
1270 IF I=TABB THEN 960
1280 IF I=BACKSP THEN 1080
1290 IF I=UP THEN 840
1300 IF I=DOWN THEN 390 ELSE 1210
1310 '----- quit
1320 OPEN "O",#1,FILES$+".MUS": FOR A=1 TO Q: WRITE #1,TUN$(A):NEXT: CLOSE: END
1330 '----- name
1340 LOCATE 18,1: PRINT "The name of this tune is "FILES$.MUS. Do you want to c
hange it? ";:GOSUB 1860: IF I$="N" OR I$="n" THEN 1370 ELSE CLOSE: GOSUB 2780:
GOSUB 2660
1350 OPEN "O", #1, FILES$+".MUS"

```






```

1360 GOSUB 2660
1370 GOSUB 2740
1380 RETURN
1390 '
1400 LOCATE 18,1: PRINT "Use TAB, BACKSPACE, ARROWS to move around. Select using
ENTER. You can create tunes by selecting notes on the keyboard, changing note
VALUE from quarter thru thirty-second, note LENGTH, and TEMPO. Try it!";
1410 GOSUB 1870: GOSUB 2740: RETURN
1420 '
1430 '----- HIGHLIGHT newbox; unhighlight oldbox; return -----
1440 '
1450 'input NEWBOX (if >1 = highlighted), OLDBOX (if >1=unhighlighted)
1460 '
1470 GOTO 1610
1480 ON NEWBOX+1 GOTO 1500,1510,1520,1530,1540,1550,1560,1570,1580,1590
1490 '
1500 RETURN
1510 X=0:Y=33:LINE(X,Y)-(X+100,Y+20),2,BF:LOCATE 6,2,0:PRINT PLAY$;:RETURN
1520 X=120:Y=33:LINE(X,Y)-(X+100,Y+20),2,BF:LOCATE 6,17,0:PRINT "QUIT";:
RETURN
1530 X=240:Y=33:LINE(X,Y)-(X+100,Y+20),2,BF:LOCATE 6,32,0:PRINT"RENAME";:RETURN
1540 X=360:Y=33:LINE(X,Y)-(X+100,Y+20),2,BF:LOCATE 6,47,0:PRINT"STORE";:RETURN
1550 X=480:Y=33:LINE(X,Y)-(X+100,Y+20),2,BF:LOCATE 6,62,0:PRINT "HELP";:RETURN
1560 LINE(34,68)-(554,122),2,B: RETURN
1570 X=0:Y=170:LINE(X,Y)-(X+100,Y+20),2,BF:LOCATE 23,2,0:PRINT"VALUE=";:
PRINT MID$(V$,V,1);:RETURN
1580 X=120:Y=170:LINE(X,Y)-(X+100,Y+20),2,BF:LOCATE 23,17,0:PRINT"LENGTH="L;:
RETURN

```



(512)  
657-2012  
**Hammer Bros.**

## Sanyo Compatible Printers

### STAR MICRONICS

Gemini 10 x, 120 cps.	\$299
Gemini 15 x, 120 cps, 15" car.	399
Powertype 18 cps ltr. qual.	399
Tractor Feed (bi-directional).	90

### OKIDATA

92P (160) cps	\$419
93P (160) cps	649

### EPSON

RX80FT (120 cps, frict/tract)	\$339
FX80 (160 cps)	459
FX100 (160 cps, 15" car.)	679

All Printers with FREE SANYO CABLE a \$24.95 value

### DISKETTES ELEPHANT

5 1/4" SSDD.	\$16.75
5 1/4" SSDD.	\$19.95
5 1/4" DSDD.	\$25.95



Cashiers/U.P.S.  
Add shipping & handling

**14008 Nacogdoches  
San Antonio, Texas 78247**

## ENHANCE WordStar with

## P-r-o-p-o-r-t-i-o-n-a-l Spacing on WordStar

You are reading text printed by WordStar in proportional spacing, providing a professional, easy to read, typeset appearance, direct from the print command on any version of WordStar. Also print two or more columns on a page, underline spaces between words, and much more. Works with most letter quality printers (Diablo, Qume, NEC, Juki, Brother, C. Itoh, Silver Reed, others).

"The best and least expensive method of dramatically improving the appearance of any WordStar text" - LIST  
Disk version (CP/M, MS/PC-DOS) automatically modifies WordStar \$75 including manual. Manual only (100 pages - with full details for implementing PS using Install) \$25. No technical skill is needed. Text can be right justified. Printer does not require PS logic. Prices include shipping in U.S. NYS add tax.

Okay! My check is enclosed for \$..... (or charge my VISA/MC acct # ..... exp .....).

### Writing Consultants

Suite 253, 11 Creek Bend Drive - Fairport, NY 14450

1-800-828-6293 (in NYS 1-716-377-0130)

phones open 24 hours - dealers please call or write



```

1590 X=240:Y=170:LINE(X,Y)-(X+100,Y+20),2,BF: LOCATE 23,32,0:PRINT"TEMPO="NUM;:
RETURN
1600 '
1610 ON OLDBOX+1 GOTO 1480,1630,1640,1650,1660,1670,1680,1690,1710,1720
1620 '
1630 X=0:Y=33: LINE(X,Y)-(X+100,Y+20),1,BF:LOCATE 6,2,0:PRINT PLAYY$;:GOTO 1480
1640 X=120:Y=33: LINE(X,Y)-(X+100,Y+20),1,BF:LOCATE 6,17,0:PRINT"QUIT";:
GOTO 1480
1650 X=240:Y=33:LINE(X,Y)-(X+100,Y+20),1,BF:LOCATE 6,32,0:PRINT"RENAME";:
GOTO 1480
1660 X=360:Y=33:LINE(X,Y)-(X+100,Y+20),1,BF: LOCATE 6,47,0:PRINT"STORE";:
GOTO 1480
1670 X=480:Y=33:LINE(X,Y)-(X+100,Y+20),1,BF:LOCATE 6,62,0:PRINT"HELP";:
GOTO 1480
1680 LINE(34,68)-(554,122),1,B: GOTO 1480
1690 X= 0:Y=170:LINE(X,Y)-(X+100,Y+20),1,BF: LOCATE 23,2,0:PRINT"VALUE=";
1700 PRINT MID$(V$,V,1);:GOTO 1480
1710 X=120:Y=170:LINE(X,Y)-(X+100,Y+20),1,BF:LOCATE 23,17,0:PRINT"LENGTH="L;:
GOTO 1480
1720 X=240:Y=170:LINE(X,Y)-(X+100,Y+20),1,BF: LOCATE 23,32,0:PRINT"TEMPO="NUM;:
GOTO 1480
1730 '
1740 '----- draw initial screen
1750 NEWBOX=0: PLAYY$="PLAY": V=4: L=1: NUM=60: PITCH=25
1760 N$="VQ":GOSUB 2220:N$="L1":GOSUB 2220:N$="T60":GOSUB 2220
1770 '----- draw kbd.
1780 TOP=70: BOT=120: LINE(36,TOP)-(552,BOT),2,BF
1790 FOR X=44 TO 520 STEP 84:LINE(X,TOP)-(X+8,100),0,BF:
LINE(X+12,TOP)-(X+20,100),0,BF:LINE(X+36,TOP)-(X+44,100),0,BF:
LINE(X+48,TOP)-(X+56,100),0,BF:LINE(X+60,TOP)-(X+68,100),0,BF:NEXT
1800 FOR X=36 TO 552 STEP 12: LINE(X,TOP)-(X,BOT),0:NEXT
1810 '-----
1820 FOR OLDBOX=1 TO 9: GOSUB 1430: NEXT
1830 NEWBOX=HELPOBOX: OLDBOX=0: GOSUB 1430
1840 GOSUB 2700: GOSUB 2250: GOSUB 1400: RETURN
1850 '-----
1860 '----- wait for input; translate string into number; return
1870 I$=INKEY$: IF LEN(I$)<1 THEN 1870 ELSE I=ASC(I$): RETURN
1880 '-----
1890 DATA eb,2,0,0,fa,8b,ec,1e,c5,5e,8,8b,f,c5,5e,4,8b,17,e,1f,2e,89,e,2,1,b8,35
,0,34,8,e6,3a,fe,cc,75,3,4a,74,9,e2,f7,2e,8b,e,2,1,eb,ec,34,8,3c,35,75,2,e6,3a,1
f,ca,8,0
1900 DATA 622,595,561,528,499,469,440,417,391,371,351,331
1910 DATA 311,294,277,262,248,233,220,208,196,185,175,165
1920 DATA 155,147,138,130,123,116,109,104, 97, 92, 86, 82
1930 DATA 77, 72, 69, 64, 61, 57, 54, 51, 48, 45, 42, 40
1940 DATA 38, 36, 34, 32, 30, 28, 26, 25, 23, 22, 21, 19
1950 DATA 18, 17, 16, 15, 14, 13, 13, 12, 11, 10, 10, 9
1960 DATA 8, 8, 8, 8, 7, 7, 7, 6, 6, 5, 4, 3
1970 '-----
1980 ' The HEART of the program
1990 ' evaluates stored strings as the arrays F(X) (frequencies) and
2000 ' D(X) (durations) and passes them to the sound driver at &H100
2010 '
2020 C=0: FOR I=1 TO Q: I$=TUN$(I): GOSUB 2040: NEXT: GOSUB 2170: RETURN
2030 '
2040 IF LEN(I$)=0 THEN RETURN
2050 IF LEFT$(I$,1)<>"T" THEN 2070 ELSE NUM=VAL(MID$(I$,2,LEN(I$)-1))
2060 TEMPO=60/NUM*SPEED: RETURN

```





```

2070 IF LEFT$(I$,1)="V" THEN 2130
2080 IF LEFT$(I$,1)<>"L" THEN 2090 ELSE L=VAL(RIGHT$(I$,1)): RETURN
2090 PITCH=VAL(I$):IF PITCH>0 AND PITCH<MAX+THEME1 2010ELSE RETURN
2100 '
2110 '----- a note
2120 C=C+1: F(C)=NOTES(PITCH): D(C)=TEMPO*V*L/32: RETURN
2130 '----- value
2140 I$=RIGHT$(I$,1)
2150 IF I$="E" THEN V=4 ELSE IF I$="Q" THEN V=8 ELSE IF I$="S" THEN V=2 ELSE
    IF I$="T" THEN V=1 ELSE IF I$="H" THEN V=16 ELSE IF I$="W" THEN V=32
2160 RETURN
2170 '----- play it
2180 FOR X=1 TO C: F=F(X): D=D(X): CALL $H100, F, D: NEXT: RETURN
2190 '
2200 '----- subroutines -----
2210 '----- concatenate string of tune info - each new info passed as n$
2220 Q=Q+1:TUN$(Q)=N$: IF Q=5000 THEN STOP ELSE RETURN
2230 '
2240 '----- the bouncing ball
2250 OCT=33+INT(PITCH/12)*84
2260 PLUS=PITCH MOD 12: IF PLUS<>0 THEN 2270 ELSE PLUS=12: OCT=OCT-84
2270 IF OLD<>1 THEN 2280 ELSE PLUS=PLUS+12: OLD=0
2280 BY=93: WY=113
2290 ON PLUS GOSUB 2310,2320,2330,2340,2350,2360,2370,2380,2390,2400,2410,2420,
    2430,2440,2450,2460,2470,2480,2490,2500,2510,2520,2530,2540
2300 RETURN
2310 PUT(OCT+6,WY),WDOT: RETURN
2320 PUT(OCT+12,BY),BDOT: RETURN

```



## The Handicapper

Use your Sanyo to improve your performance at the track! These fine programs for **Thoroughbreds**, **Harness Horses** and **Greyhounds** combine the power of your Sanyo 550 series computer with the savvy of a veteran handicapper. Spend a few minutes entering data, and The Handicapper will rank the horses or dogs in each race. All the information is readily available from the Thoroughbred Racing Form, harness or greyhound track program. We even provide a diagram showing you where to get the data you need!

Horse racing factors include speed, class, past performance, post position, stretch gain, beaten favorite, jockey or driver's record, weight (for thoroughbreds) and parked-out signs (for trotters). Greyhound factors include speed, past performance, class, favorite box, kennel record, breaking tendencies, beaten favorite.

Complete instructions and wagering guide included. Thoroughbred, Harness or Greyhound Handicapper, only \$49.95 each. Any two, just \$74.95. All three only \$99.95. Checks, Money Orders or VISA/MC welcomed.



**Federal Hill Software**  
**825 William Street**  
**Baltimore, MD 21230**  
**301-685-6254**



## FIND THE RIGHT WORD with

## Synonym Finder A Thesaurus for

## WordStar and Multimate!

Improve your writing by quickly finding the *perfect* word. Put your cursor on a word, give the command, and up pops a list of alternate words (synonyms). Pick one, hit return, and voila, your new word replaces your old word, without having to delete or retype! Enhance your communications for only \$124<sup>95</sup> (or, find a friend and buy 2 or more copies at only \$99.95 each!).


Plus \$2.50 shipping - NYS residents add sales tax. Installs in a jiffy on most machines that run WordStar (3.3 or 3.0), Multimate, or Word Perfect. Specify word processor, computer, operating system (MS/PC-DOS or CP/M 80) and disk format.

Okay! My check is enclosed for \$..... (or charge my VISA/MC acct # ..... exp ...../.....).

## Writing Consultants

Suite 311, 11 Creek Bend Drive - Fairport, NY 14450  
**Orders only: 800-828-6293 Info: 716-377-0130**  
 dealers please write





```

2330 PUT(OCT+18,WY),WDOT: RETURN
2340 PUT(OCT+24,BY),BDOT: RETURN
2350 PUT(OCT+30,WY),WDOT: RETURN
2360 PUT(OCT+42,WY),WDOT: RETURN
2370 PUT(OCT+48,BY),BDOT: RETURN
2380 PUT(OCT+54,WY),WDOT: RETURN
2390 PUT(OCT+60,BY),BDOT: RETURN
2400 PUT(OCT+66,WY),WDOT: RETURN
2410 PUT(OCT+72,BY),BDOT: RETURN
2420 PUT(OCT+78,WY),WDOT: RETURN
2430 PUT(OCT+6,WY),WKEY: RETURN
2440 PUT(OCT+12,BY),BKEY: RETURN
2450 PUT(OCT+18,WY),WKEY: RETURN
2460 PUT(OCT+24,BY),BKEY: RETURN
2470 PUT(OCT+30,WY),WKEY: RETURN
2480 PUT(OCT+42,WY),WKEY: RETURN
2490 PUT(OCT+48,BY),BKEY: RETURN
2500 PUT(OCT+54,WY),WKEY: RETURN
2510 PUT(OCT+60,BY),BKEY: RETURN
2520 PUT(OCT+66,WY),WKEY: RETURN
2530 PUT(OCT+72,BY),BKEY: RETURN
2540 PUT(OCT+78,WY),WKEY: RETURN
2550 '
2560 '----- initialize dots for PUT and GET on keyboard picture
2570 '
2580 COLOR 0,2: CLS: GET(97,97)-(103,103),WKEY
2590 CIRCLE (100,100),4,,,0: PAINT(100,100),0
2600 GET(97,97)-(103,103),WDOT: COLOR 2,0: CLS: GET(97,97)-(103,103),BKEY
2610 CIRCLE (100,100),4,,,2: PAINT(100,100),2: GET(97,97)-(103,103),BDOT
2620 COLOR 2,0: CLS: RETURN
2630 '
2640 '----- blank the name
2650 '
2660 SYMBOL(430,170),"",2,2,2: RETURN
2670 '
2680 '----- draw the name
2690 '
2700 SYMBOL(430,170),FILE$+".MUS",2,2,2: RETURN
2710 '
2720 '----- blank 3 lines
2730 '
2740 LOCATE 18,1: PRINT NUL$;NUL$;NUL$: RETURN
2750 '
2760 '----- ask for filename
2770 '
2780 LOCATE 18,1: PRINT NUL$;; LOCATE 19,1,0: INPUT "Enter filename (maximum 8 c
haracters): ";FILE$
2790 FOR A=1 TO LEN(FILE$): B=ASC(MID$(FILE$,A,1))
2800 IF B>96 AND B<123 THEN B=B-32: MID$(FILE$,A,1)=CHR$(B): NEXT : 'upper case
2810 GOSUB 2740: RETURN
2820 '
2830 '----- file error handling
2840 '
2850 IF ERR<>53 THEN 2860 ELSE PRINT "File not found": RESUME 210
2860 IF ERR<>55 THEN 2870 ELSE CLOSE: RESUME
2870 IF ERR<>58 THEN 2880 ELSE PRINT "File already exists": RESUME 210
2880 IF ERR<>61 THEN 2890 ELSE PRINT "Disk full": RESUME 210
2890 IF ERR<>62 THEN 2900 ELSE PRINT "Input past end": RESUME
2900 PRINT "Other error has occurred.";; STOP

```



# ACCOUNTING FOR MICROS



**\$395** Set of Four  
**\$325** Set of Three  
**\$465** Set of Five

**ACCOUNTING FOR MICROS IS** a set of interactive accounting programs which meet professional standards. Programs are fast and easy to use, with complete and concise documentation. Slipcase and binder manual also includes valuable tutorial information on bookkeeping and general small computer use.

**GENERAL LEDGER ..... \$125**  
 Allows up to 1,000 accounts & 1,000 transactions/month. Retains mo/end balances for Last year, This Year and Forecast. Includes Cash Disbursements, Cash Receipts and General Journals. Reports include Balance Sheet, Income Statement, Annual Summaries and Journal Reports.

**ACCOUNTS RECEIVABLE ..... \$125**  
 Allows up to 2,500 customers and 1,000 invoices per month. Invoicing can access Inventory Module. Keeps customer names and addresses. Invoice prints on plain paper or any pre-printed form. Statements can be printed at any time.

**ACCOUNTS PAYABLE ..... \$125**  
 Allows up to 500 vendors and 600 invoices/mo. Records invoices and handwritten checks. Prints computer checks on any pre-printed form. Keeps vendor names and addresses.

**INVENTORY ..... \$125**  
 Allows up to 6,000 parts. Keeps 3 month history of unit sales as well as year to date. With AR, can be used as point of sale system (prints invoices, handles cash). Reports include Inventory Value and Stock Report, Internal and Customer Price List.

**PAYROLL ..... \$125**  
 Will handle up to 100 employees with six deductions per employee. Deductions may be determined as fixed dollar amounts or percentages, or referred to a table for automatic look-up. Tax tables are easily entered, or purchased separately.

**SET OF FIVE ..... \$465**  
**SET OF FOUR ..... \$395**  
**SET OF THREE ..... \$325**

## PROGRAMS RUN ON MOST CPM AND MSDOS MACHINES

Apple CPM  
 Columbia  
 Compaq  
 Corona  
 Cromemco  
 Eagle  
 Epson QX-10  
 IBM PC, XT, PC Jr, AT

Kaypro II, 4&10  
 Morrow MD2,  
 MD3, MD11  
 Osborne I &  
 Executive  
 Otrona  
 Panasonic  
 Radio Shack CPM

Sanyo  
 Tandy 1200 HD  
 Tandy 2000  
 TeleVideo  
 Xerox 820 5"  
 8" CPM  
 Other CPM or MSDOS

## DEMO DISK \$18.00



Try all 5 programs, order our DEMO DISK for \$18.00 (includes shipping). Condensed versions of the programs will give you the "feel" of both data entry and access. Includes sample reports and instructions.

Available direct, from computer dealers, and some B. Dalton Bookstores.

**ORDERING:** Please specify machine and density. Send check or money order, or use your VISA or MasterCard (please supply expiration date as well as account number). Price includes shipping (MN residents add 6% sales tax). Your order will be shipped by return mail. C.O.D. add \$2.00 per order.

**James River Group**  
 I N C O R P O R A T E D



125 North First Street  
 Minneapolis, MN 55401

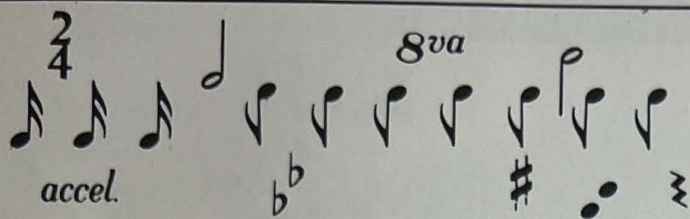
**OR ORDER BY PHONE**  
**(612) 339-2521**



```

3000 '----- play each note as it's selected
3010 F=NOTES(PITCH): D=60/NUM*SPEED*V*L/32: CALL &H100,F,D: RETURN
3020 '-----

```



**Listing 2:** PRELUDE.MUS. The following listing is a sample piece of music for playing with the *Music* program (no one said it was going to be easy). It may be typed in using a word processor in non-document mode in a single long column. Two copies of the file must be on disk, one with a .MUS extension and one with a .BAK extension.

MODEM SOFTWARE, RS232, AND WESTERN UNION EASY LINK  
TERM-123 BY TIM PURVES SUPPORTS DFT, SDT, ASCII, UP AND  
DOWNLOADING, ALL IN MACHINE LANGUAGE AND IS FULLY  
INTERRUPT DRIVEN. A SUPER \$240.00 VALUE. NOW ONLY \$30.

HAVE YOU EXPANDED YOUR SANYO? ADDED MEMORY? DOUBLE  
SIDE DRIVES? LOTUS BOARD? IF THE ANSWER TO ANY OF THESE  
IS YES THEN YOU HAVE A POWER PROBLEM, WE CAN FIX IT!!!  
POWER SUPPLY UP—GRADE KIT AND INSTRUCTIONS \$29.95

FLOPPY DRIVES (160k-360k-800k) INTERNAL OR EXTERNAL \$CALL\$

CBBS-PBBS COMMERCIAL OR PERSONAL BULLETIN BOARD  
SYSTEMS BY TIM PURVES. THIS ONE DOES IT ALL, EASY TO  
CONFIGURE, EASY TO USE. IT MAKES YOUR COMPUTER A 24  
HOUR PER DAY SALESPERSON \$99.95 OR \$59.95

SYNC INVERTER, USE A PANASONIC OR OTHER NEGATIVE SYNC RGB MONITOR WITH THE LOTUS BOARD, IT ALSO PERFORMS THE CABLE ADAPTATION YOU NEED. **\$39.95**

HARD DRIVES (5 MEG - 10 MEG) INTERNAL OR EXTERNAL \$CALL\$

POWERLINE FILTERS, PROTECTS YOUR VALUABLE INVESTMENT  
FROM DAMAGING "SPIKES" ON YOUR A/C POWER CIRCUIT. SIX  
OUTLETS. 15AMP. M.O.V. TECHNOLOGY. (3) MODELS \$39-\$49-\$59

**\*\* BRAND NEW \*\* UNLOCKIT**, A PROGRAMMER'S UTILITY BY TIM  
PURVES, UNLOCKS AND REMOVES THE PROTECTION ON A  
PROGRAM SAVED WITH THE "Q" OPTION IN SANYO BASIC **\$29.95.**

MEMORY UP-GRADE KITS WITH FULL INSTRUCTIONS TAKE YOUR SANYO ALL THE WAY TO 512k OR ADD 64k BANKS AS YOU NEED THEM. SOLDERING SKILLS REQUIRED. \$CALL\$ FOR QUOTATIONS

KEYBOARD EXTENDER CABLE ADDS SIX FEET OF REACH **\$12.95**

**\*\* NEW \*\* LEVEL IV's SANYO CATALOG, SOFTWARE, HARDWARE, ACCESSORIES, UP-GRADES AND MORE. PURCHASE PRICE IS REFUNDABLE BY COUPON ON YOUR FIRST ORDER. ONLY \$3.00**

**\*\* NOTICE \*\* PRICES CHANGE FASTER THAN OUR ADS CAN,  
USUALLY DOWN! CHECK OUR DAILY DISCOUNT PRICES WHEN  
ORDERING ANY ITEM. WE PRICE ALL OF OUR PRODUCTS ON A  
COST PLUS BASIS!**

**\*\* DEALER AND GROUP PURCHASE DISCOUNTS ARE AVAILABLE \*\***

**LEVEL IV PRODUCTS, INC.**  
**28194 SCHOOLCRAFT ROAD**  
**LIVONIA, MICHIGAN 48150**  
**(313) 525-6200**

FACTORY AUTHORIZED SANYO SALES/SERVICE CENTER

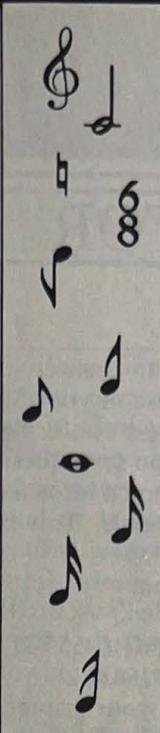
DEALER INQUIRIES INVITED

VISA/MASTER CARD/CHECKS/C.O.D.

SHIPPING/HANDLING/INSURANCE 2% (\$3 MINIMUM)

"VQ"	"20"	"22"	"23"	"22"
"L1"	"25"	"23"	"15"	"25"
"T60"	"28"	"27"	"23"	"32"
"VE"	"25"	"23"	"11"	"25"
"T 90"	"20"	"22"	"23"	"22"
"13"	"25"	"23"	"3"	"25"
"25"	"20"	"22"	"25"	"22"
"28"	"16"	"15"	"31"	"16"
"32"	"20"	"22"	"34"	"22"
"28"	"13"	"11"	"31"	"13"
"25"	"20"	"22"	"25"	"22"
"28"	"11"	"8"	"31"	"3"
"25"	"20"	"20"	"25"	"22"
"20"	"25"	"23"	"16"	"25"
"25"	"28"	"27"	"25"	"31"
"16"	"25"	"23"	"13"	"25"
"25"	"20"	"20"	"25"	"22"
"13"	"25"	"23"	"3"	"25"
"25"	"20"	"20"	"27"	"22"
"28"	"16"	"11"	"32"	"15"
"32"	"20"	"20"	"35"	"22"
"28"	"13"	"8"	"32"	"10"
"25"	"20"	"20"	"27"	"22"
"28"	"9"	"4"	"32"	"3"
"25"	"20"	"23"	"27"	"VQ"
"20"	"25"	"27"	"20"	"L1"
"25"	"28"	"32"	"27"	"T60"
"16"	"25"	"27"	"15"	"VE"
"25"	"20"	"23"	"27"	"T 90"
"13"	"25"	"27"	"3"	"20"
"25"	"20"	"23"	"27"	"23"
"30"	"16"	"20"	"31"	"29"
"33"	"20"	"23"	"42"	"23"
"30"	"13"	"16"	"31"	"20"
"25"	"20"	"23"	"27"	"23"
"30"	"8"	"13"	"31"	"20"
"25"	"20"	"22"	"27"	"14"
"21"	"25"	"28"	"22"	"20"
"25"	"28"	"32"	"27"	"11"
"18"	"25"	"28"	"19"	"20"
"25"	"20"	"22"	"27"	"3"
"13"	"25"	"28"	"4"	"19"
"25"	"20"	"22"	"26"	"22"
"30"	"16"	"13"	"32"	"28"
"33"	"20"	"22"	"35"	"22"
"30"	"13"	"10"	"32"	"19"
"25"	"20"	"22"	"26"	"22"
"30"	"7"	"3"	"32"	"19"
"25"	"22"	"22"	"26"	"13"
"21"	"25"	"25"	"20"	"19"
"25"	"28"	"31"	"25"	"10"
"18"	"25"	"25"	"16"	"19"
"25"	"22"	"22"	"25"	"3"
"13"	"25"	"25"	"3"	"20"
"24"	"22"	"22"	"25"	"23"
"27"	"16"	"15"	"28"	"27"
"30"	"22"	"22"	"34"	"23"
"27"	"13"	"10"	"28"	"20"
"24"	"22"	"22"	"25"	"23"
"27"	"7"	"3"	"28"	"20"
"24"	"22"	"22"	"25"	"15"
"21"	"25"	"25"	"19"	"20"
"24"	"28"	"31"	"25"	"8"
"18"	"25"	"25"	"15"	"20"
"24"	"22"	"22"	"25"	"3"
"13"	"25"	"25"	"3"	"20"
"24"	"22"	"22"	"23"	"22"
"27"	"19"	"13"	"29"	"25"
"30"	"22"	"22"	"32"	"22"
"27"	"15"	"10"	"29"	"20"
"24"	"22"	"22"	"23"	"22"
"27"	"8"	"3"	"29"	"20"
"24"	"VQ"	"23"	"23"	"16"
"21"	"L1"	"27"	"17"	"20"
"24"	"T60"	"32"	"23"	"13"
"18"	"VE"	"27"	"14"	"20"
"24"	"T 90"	"23"	"23"	"3"
"13"	"T 90"	"27"	"3"	"19"



" 22"	" 15"	" 8"	" 25"	" 19"	
" 25"	" 20"	" 24"	" 20"	" 13"	
" 22"	" 12"	" 27"	" 25"	" 19"	
" 19"	" 20"	" 32"	" 20"	"T 76"	
" 22"	" 8"	" 27"	" 16"	" 8"	
" 19"	" 22"	" 24"	" 20"	" 20"	
" 15"	" 25"	" 27"	" 13"	" 24"	
" 19"	" 31"	" 24"	" 20"	" 27"	
" 10"	" 25"	" 20"	"T 94"	"T 74"	
" 19"	" 22"	" 24"	" 8"	" 24"	
" 8"	" 25"	" 15"	" 19"	" 20"	
" 19"	" 22"	" 24"	" 25"	" 24"	
" 22"	" 16"	"T 87"	" 28"	" 27"	
" 25"	" 22"	" 8"	" 25"	"T 70"	
" 22"	" 13"	" 24"	" 19"	" 28"	
" 19"	" 22"	" 27"	" 25"	" 25"	
" 22"	"T 82"	" 30"	" 19"	"T 65"	
" 19"	" 8"	" 27"	" 16"	" 22"	
" 16"	" 25"	" 24"	" 19"	" 31"	
" 19"	" 31"	" 27"	" 13"	"VS"	
" 13"	" 34"	" 24"	" 19"	"T 90"	
" 19"	" 31"	" 21"	" 8"	" 8"	
" 8"	" 25"	" 24"	" 19"	" 24"	
" 20"	" 31"	" 18"	" 25"	" 27"	
" 22"	" 25"	" 24"	" 28"	"VW"	
" 25"	" 16"	"T 91"	" 25"	" 32"	
" 24"	" 25"	" 8"	" 19"		
" 20"	" 13"	" 20"	" 25"		
" 24"	" 25"	" 25"	" 19"		
" 20"	"T 84"	" 28"	" 16"		

**Listing 3:** Sample assembly language sound generation program.

```

; SOUNDSYN.COM
; synchronous sound for the Sanyo
; example by Marcia L. Peters

STI          ; disable interrupts
MOV CX,0600 ; duration
MOV AX,0000 ;
OUT 3A,AL   ; command register is port 3A
MOV AL,40   ;
OUT 3A,AL   ; chip reset
MOV AL,8C   ; mode instruction: 1 sync character,
OUT 3A,AL   ; parity disabled, 8-bit data, sync mode
MOV AL,00   ; chip expects one sync byte following mode instr.
OUT 3A,AL   ; so make it a zero
MOV AL,35   ; command: request to send, reset error flags,
OUT 3A,AL   ; receive enable, transmit enable.

; output low half of wave-form

LOW:  MOV AH,00 ; set up data that will be output
LOOP1: IN AL,3A ; read status register
TEST AL,01 ; transmitter ready for more data yet?
JZ LOOP1 ; no, ask again later
MOV AL,AH ; data will be output from AL
OUT 38,AL ; output 1 byte of 00

; output high half of wave-form

HIGH: MOV AH,FF ; set up data that will be output
LOOP2: IN AL,3A ; read status register
TEST AL,01 ; transmitter ready for more data yet?
JZ LOOP2 ; no, ask again later
MOV AL,AH ; data will be output from AL
OUT 38,AL ; output 1 byte of FF

; repeat for duration

LOOP LOW ; decrement CX and loop if not zero

; reinitialize 8251 USART so keyboard can talk to CPU again

MOV AL,00 ; stop transmit immediately
OUT 3A,AL
MOV AL,40 ; reset chip
OUT 3A,AL
MOV AL,FF ; Mode instruction: 2 stop bits, even parity,
OUT 3A,AL ; parity enable, 8-bit data, clock rate / 64
CLI ; enable interrupts

```

## CAC LANGUAGE TUTORS

FOR THE SANYO 55X

Exciting Educational Games  
to learn foreign vocabulary.  
Ideal for children and adults.  
Learn while playing

SPANISH **\$39<sup>95</sup>**  
FRENCH  
GERMAN  
ITALIAN  
PORTUGUESE  
ENGLISH (for Spanish-speakers)  
Each

• DEALERS INQUIRIES INVITED •

## CAC BULK DISKS

LIFETIME WARRANTY!

**\$135** ea. 5 1/4" SSDD **\$155** ea. 5 1/4" DSDD  
QTY. 20 QTY. 20

ALSO:

6 Outlet Surge Protector . . . . \$59.95  
64K RAM Memory Set (150ns) . . 39.95  
RS-232 for Sanyo 55X . . . . . 69.95  
COPYLINK . . . . . 79.95

CALL US FOR OUR LATEST PRICES  
ON COMPUTERS, MODEMS, PRINT-  
ERS, GAMES & BUSINESS SOFTWARE

### PROGRAMMERS

We are now reviewing programs  
written for the 55X and Generic  
MS-DOS. Call or write for information

### COMPUTER ALPHA CORPORATION

P.O. Box 182, Brooklyn, NY 11217  
(718) 855-9029

Monday through Friday 10 am-5 pm  
Saturday 9-12

TO ORDER: send M.O. or cashier check.  
Personal/company checks—allow 3 weeks  
for clearance. Add \$3.50 for shipping.  
CODS: add \$2. NYS residents add  
8 1/4% sales tax.

### NEW YORK SANYO USERS GROUP

More than 200 members. Newsletters,  
meetings, a public domain library with  
50+ volumes (send \$3 for latest catalog).  
Call our BBS (718) 596-5802  
NYSUG, P.O. Box 182  
Brooklyn, NY 11217



## BUSINESS SECTOR

CHARLOTTE & BRIAN STONE

Soft Sector Contributing Editors

**A**s you are aware, we are trying to answer all of your questions in order to make use of your Sanyo computer more productive and less confusing. In order for us to be able to do this, when you send questions to SOFT SECTOR, please try to include as much information about your problem or question as possible. Too much information is better than not enough.

Please include the following information:

- Model of computer; i.e., MBC-550, MBC-555-2, etc.
- Amount of memory: 128K, 192K or 256K.
- Manufacturer and model number of your printer.
- Is the printer a dot matrix or daisy wheel?

It may seem that we should know if a particular printer is a dot matrix or not, but with all of the manufacturers who make both types, it is hard to know them all.

If you need specific information about how to get a special function to work from *WordStar* for example, send copies of the manual pages that detail the control codes and you will get your reply much faster. We have manuals on many printers, but not all of them. Remember, we send answers directly to everyone who includes an address so that you do not have to wait for the reply to be printed in the magazine.

If your question is relative to *InfoStar*, please send a CONTROL-W listing of the form or report definition file you are having a problem with and, also, a sample report printout if you feel the report is not handling the data correctly.

**Q.** *I am having trouble with the WordStar program. When I go to print a file and ask for a pause between paper changes (I do not use a tractor mechanism), eight lines of print go beyond the end of my paper. I tried to use the pagination command, but then that command is printed as a separate line and the rest of the file is printed as if nothing happened. Because of this, I have had to watch the printer and press the online button when I want to change paper. I am using a Sanyo PR-5000 letter-quality printer. Can you tell me how to remedy this situation?*

Steve Gocke  
York, NE

**A.** The problem you are having with *WordStar* is not understanding how the defaults for page size are set up. Without using any "dot" commands, your letter will look like the following:

Margin Top = 3 Lines	1
	3
Text Area = 55 Lines	1
	55
Margin Bottom = 8 Lines	1
	8

The total of  $3+55+8 = 66$  lines, the length of a standard page of  $8\frac{1}{2}$ - by 11-inch paper. A problem you may also be having is leaving too much room at the top of the page. Remember, *WordStar* will always print three blank lines unless told not to.

If you put *.MT0* at the top of your file (it *must* be the

## Performance Enhancements

Quality peripherals for the Sanyo MBC-550

  
**DESERT  
TECHNOLOGIES**  
A DIVISION OF  
DESERT TEKSYSTEMS CORP.

DEALER/DISTRIBUTOR INQUIRIES INVITED

2341 S. FRIEBUS  
SUITE 19  
TUCSON, AZ 85713  
(602) 325-9455



first line), you will gain the three blank lines (the top margin). You could also use .MB0 as the second line in your file and this will eliminate the bottom margin, giving you a full 66 printed lines on your page. Both .MT0 and .MB0 must have the dot (period) in the first column of your screen. If not, they will be printed as text. Now, if you have done both of the above, you will have to adjust your page length so that you don't run off the page before WordStar stops for the insertion of the next sheet of paper. If you wanted to print 48 lines of text per page, you could do the following:

- .MT0 This eliminates the top margin.
- .MB18 This sets the bottom margin to 18 blank lines.

Now you could adjust your paper in the printer with a 1½-inch margin at the top and have a 1½-inch margin at the bottom. The best thing to do is experiment and see what happens. The Sanyo PR-5000 printer will do all of the things WordStar is capable of doing. It just takes some practice. Also, if you would like to get a very good book to learn WordStar, find *Introduction To WordStar*, by Arthur Naiman, published by Sybex, ISBN #0-89588-134-9.

**Q.** I have a Gemini-10X printer and would like to use 1½ line spacing rather than single or double spacing. Also, I would like to use WordStar to produce newsletter-style pages with the ^KN columnar mode function, but it does not work. It seems to get turned off as soon as I try to use it.

How can I get CalcStar to print condensed print without going into WordStar, printing a condensed print file and then going into CalcStar? And how can I get WordStar

to print the graphics that the Gemini-10X is capable of printing?

Marion Hugos  
St. Clair Shores, MI

**A.** Regarding your problem in making WordStar do 1½ line feeds on every line, I would need a copy of the manual pages outlining all of the control and escape sequences to determine if this could be done. Under normal circumstances, dot matrix printers are not set up to do partial or larger than one line feed at a time. However, they usually do have incremental line feed capability, which in most cases is used for graphics generation.

WordStar's ability to work in the columnar mode is not intended to function as you would like to use it. The following is a quote from the WordStar user's manual:

Column mode has no impact on normal text entry or editing within a column. You still type from margin to margin, whether or not you are in column mode.

This mode is intended to be used to rearrange columns of data when working on material similar to a spreadsheet. The column mode, ^KN, does function as intended. You can use single columns, but not multiple columns on the same page.

If this is something that you feel you must be able to do, the process of "snaking" is explained in all of its painful detail in a very good book, *Getting The Most From WordStar and MailMerge*, by M. David Stone, published by Prentice-Hall, Inc., ISBN #0-13-354382-X.

It is not necessary to use WordStar to set up your printer for condensed print. This can be done from DOS by typing the following in capital letters only (under MS-DOS 2.11). Your screen will look like this:

# \$1995

## PORTABLE

- INCLUDES EASYWRITER II—EASYFILER—EASYPLANNER—GW BASIC
- NINE INCH **COLOR** MONITOR • TWO 360K DRIVES
- IBM COMPATIBLE • TWO IBM CARD EXPANSION SLOTS

### PARKYRTH SERVICES

2517 ST. PAUL STREET • BALTIMORE, MD 21218 • (301) 243-7700  
ADD \$15.00 SHIPPING & HANDLING. MD RESIDENTS ADD 5% TAX  
CHARGE CARDS ADD 2%





COPY CON PRN and press RETURN  
^[F^O^Z and press RETURN

Getting the above on the screen is accomplished as follows:

^[ by holding the CONTROL key and pressing the '[' key.  
F by pressing the 'F' key.  
^O by holding the CONTROL key and pressing the 'O' key.  
^Z by holding the CONTROL key and pressing the 'Z' key.  
Now press the RETURN key.

All of the above must be done with the printer turned on and online, ready to print. The above sequence will work with most Epson-compatible printers, as well as substituting other codes for expanded print, etc. Experiment. Remember, you can't hurt your computer from the keyboard. Thanks to Chuck Thompson for his help on this one. Also, see the letter to Sally Mitchell elsewhere in this month's column.

As for graphics with *WordStar*, you are thinking of using word processing software for something it was never intended to do. You would be much better off with some of the graphics software that is available from several of the advertisers in *SOFT SECTOR*.

**Q.** *How can I get WordStar to print continuously on roll paper without page breaks, headers and footers? I want to eliminate the page length limitation and can't seem to find the answer.*

*Robert Schmitz  
Hunt, TX*

**A.** Due to the fact that *WordStar* will not allow an infinite page length, we will have to cheat. The dot commands of *WordStar* will allow you to make the necessary adjustments to your document to print it on roll paper without page breaks or top and bottom margins.

You will want to create your original document with

*WordStar* in its default mode, either 'N' or 'D'. It will not matter which. After you are finished with the document and ready to print it, you must do the following. Enter the "edit" mode 'N' or 'D' and place these dot commands at the first three lines of the file, *.MT0*, *.MB0* and *.PL1*. These commands will do the following: *.MT0* will eliminate the top margin, *.MB0* will eliminate the bottom margin, and *.PL1* will tell *WordStar* that each page is one line long. The only thing that will really be confusing is what will happen to the display after you enter these dot commands. Each and every line of text will have a "page break" indication after it. But it will work.

**Q.** *I have a problem installing the printer features for WordStar with my Gemini-10X printer. The article by Brian M. Stone in the premier issue of SOFT SECTOR helped me install the user patches successfully, but I cannot decipher the other control sequences from the printer manual. As I understand it, the printer is capable of all of the special features found in the program, but some of the dot commands involving line height, character pitch or margins do not work. If you could assist me with the correct control sequences for the custom printer installation, it would produce one less frustrated reader.*

*Gordon Shuford  
Hanahan, SC*

**A.** You will not be able to get *all* of the *WordStar* features with a dot matrix printer. *WordStar* was designed to be used with a daisy wheel printer and many dot matrix printers are not able to duplicate all of the functions. You specifically refer to line height and character pitch; these are two of the features which most dot matrix printers cannot duplicate the same as daisy wheel printers.

The reason character pitch cannot be duplicated is that daisy wheel printers use fully formed characters on a print wheel or a thimble and just vary the spacing between the letters. Most daisy wheel printers are capable of dividing each inch of horizontal movement into  $\frac{1}{120}$ th of an inch. This means that at 10 pitch, each character will take  $\frac{12}{120}$ th of an inch and 12 pitch will take  $\frac{10}{120}$ th of an inch and

# LPR Bookkeeper

Accounts Receivable,  
Accounts Payable,  
General Ledger and Inventory.

## Beautifully Simple!

Completely menu driven, double entry accounting with excellent documentation.

## Powerful!

Dynamic file allocation allows an average of 200 accounts with over 750 monthly transactions on 160Kb drives.

Does everything you'd expect a powerful accounting system to do: prints invoices, statements, checks, trial balance, profit & loss, balance sheet, detailed ledgers, on-hand/re-order reports, sales analysis & extended standard reporting. Other features include Rolodex cards/mailling labels, auto billing, finance charges, auto/manual invoice pay selection, auto interfaces and three color displays.

Everything considered, including a ninety-day limited warranty, the LPR Bookkeeper is

## Simply Beautiful!

Written especially for the

# SANYO

MBC 555

### Single Module \$150

Tri-Pak \$375 Quad-Pak \$475  
AP, AR, GL AP, AR, GL, INV

Also available in MS/PC-DOS & CP/M

Minimum requirements: dual 160Kb drives,  
128K RAM, 80 Column printer.

## LA PLATA RESEARCH

3001 Northridge Dr. "D"  
P.O. Box 10612, Farmington, NM 87499

(505) 326-5833

Dealer inquiries invited



# INTELLICOM

## MAKES YOUR COMMUNICATIONS EASY

NOW AVAILABLE FOR THE SANYO 550/555 COMPUTER, Intellicom allows you to "reach out" and tap the tremendous number of information data bases available within easy reach of your telephone. Information services such as The Source, CompuServe, Dow Jones and Newsnet can easily be accessed. Communicate with your office mainframe and transfer files while in the comfort of your home. Check into remote bulletin board systems and download free public domain software. Send and receive electronic mail. The list of possibilities is limited only by your imagination. Intellicom provides the INTELLigent COMMunications program your Sanyo needs.

Don't Compromise. Your Sanyo PC can be the smartest terminal you could ever hope for. Intellicom is a full feature terminal emulation program that allows you to choose from a menu of terminals that include:

- Digital VT52
- Digital VT100
- ADDS Viewpoint
- ADDS 25
- Televideo 910
- ADM3A
- Simple TTY
- ADM 5

Both binary and text files can be transferred using simple ASCII, ASCII Capture, Xon/Xoff, XMODEM and CompuServe A protocol! You can operate at any speed up to 4800 baud!

Intellicom features an easy to use menu selection system with a built in Help facility that leaves the reference manual on the shelf.

Autodial directories are supported (requires Hayes or equivalent modem) as is simultaneous printer operation. Version 2.1 even includes a DOS WINDOW that allows you to actually run another program concurrently!

If you're linking to an in-house digital DecSystem 10, 20 or VAX, the mainframe host support code is available for only \$10.00 at time of purchase!

**Hard to believe? Send us \$15.00 and we'll ship you a completely functional demo version. We are sure you will agree Intellicom V2.1 is the best price performer on the market today.**

Please note version 2.1 of Intellicom requires MSDOS 2.0 or higher. Terminal emulation includes most or all attributes of the specific terminal emulated. A less extensive version is available for users with MSDOS 1.25 (Intellicom 1.9S).

**INTELLICOM is priced at only \$69.95**

Order INTELLICOM from your local Sanyo dealer or direct from:

**THE COMPUTER TOOLBOX**

1325 East Main Street — Waterbury, Conn. 06705

**Toll Free Number 1-800-321-DATA**

In Connecticut Telephone (203) 597-0273

MasterCard, Visa and COD orders are welcome. Specify DOS Version when ordering. Connecticut residents add 7½% sales tax — orders (except for demo version) add \$5.00 for shipping.

**COMPARE AT ANY PRICE**



so on. Dot matrix printers must form the characters as they are printed and this is done by software in the printer. The software is limited in most cases to 10 pitch standard (80 columns), 17 pitch compressed (132 columns) and five pitch double wide (40 columns), all on an 80 column printer using 8½-inch paper. Some printers will allow the combination of compressed (132 column) and double wide (40 column) to yield 8.5 characters per inch. In most cases this is the limit that we can work with because of the built-in limitations of the printer.

Some of the newer, more expensive dot matrix printers are also capable of proportional spacing, but in most cases this feature does not work well because *WordStar* does not fully support it.

Regarding line height, you are again into the daisy wheel versus dot matrix printer functions. Daisy wheel printers are capable of dividing each vertical inch of space into 1/48th of an inch. Most dot matrix printers only support 1/6th or 1/8th of an inch line feeds when used in text print mode. Yes, many are capable of much higher dot per vertical inch printing, but in graphics mode only.

In regard to the use of margins, you should not have a problem. I would be better able to answer you if I knew what kind of a problem you are having. The default values for *WordStar* are as follows:

- Top margin — three lines (blank)
- Text area — 55 lines
- Bottom margin — eight lines (blank)
- Page offset — eight columns (First character in the ninth column)  
(Text area is 65 characters wide)

To change any of these values you would use the following dot commands:

- .POx 'x' would be the number of columns skipped before characters are printed.
- .PLxx 'xx' will be the page length (.PL90 for 15 inches).
- .MTx 'x' will be the number of blank lines at the top of the page.
- .MBx 'x' will be the number of blank lines at the bottom of the page.

.MTx and .MBx will determine the line count (text area) unless you change .PLxx. If you use .MT10 and .MB10, you will have a text area of 46 lines.

*I recognize the value of running a FormSort on my database from time to time, but is there any way, apart from entering leading zeroes (which I do not want in my printed copy) to get the index to order the records correctly during data entry?*

Peter Nicholson  
Honolulu, HI

**A.** There is no way, except by entering leading zeroes, to have the index show you your records in correct numerical order. The index has no effect on the actual order of the records in the file. It is simply a finding system which looks at numbers in exactly the way you describe. The Edit Scan Mask looks at right-justified numbers by placement, but I don't see that it would be of help to you.

If you want to be able to scan through your file in numerical order, use *FormSort* before your scan, then scan in data order. If you want a report printed in numerical order, use *FormSort* first, then have your report access the data file sequentially. I am guessing that these are the two results that you wanted from the index.

**Q.** My problem is how to write "qualified" additional data files with InfoStar. I wanted to have four separate mailing lists and yet be able to enter all new names and addresses into just one list.

I created a file called MAILLIST and, along with the usual name, address1, address2, city, state, zip, I included four additional fields to signify whether or not the particular record would be included in that particular mailing list. They were simply PSS\_, TA\_, CUST\_, and OTHER\_. I then entered a 'Y' in the single column field for the one or more lists I wanted that record to be included in. That seemed simple enough to me. Now, however, I can't figure out how to get InfoStar to write new data and index files for the four separate mailing lists out of the one master MAILLIST. The only qualifier is in ReportStar — "Include If" — and here I simply would say "Include If Field #10 Equals Y." But, how do you get ReportStar to write a new set of the same comma-delineated DTA and NDX files for this qualified set of records, or in fact, all four sets of records that will come out of the master MAILLIST file.

Steve Garman  
Oklahoma City, OK

**A.** You have done an excellent job in preparing for the result you want to achieve. Here's how to finish what you started.

**Q.** The key field in my database is numerical and the field is right justified. The contents range from one to about 8,000. The index scans the first digit, then the second, then the third, without regard to right justification, so that the numbers are ordered like this: 1, 1000, 132, 14, 260, 27, 3, etc. FormSort treats the same numbers correctly and puts them in whole-number order: 1, 3, 14, 27, 132, 260, 1000.

Make four copies of your MAILLIST.DEF file, renaming them in some way to indicate their desired contents — possibly PSSLIST.DEF, TALIST.DEF, CUSTLIST.DEF and OTHERLIST.DEF. Next, write a report to access MAILLIST and output to one of the other four files. To save time, you can use RGEN to start and then edit the result. Name the report to indicate the desired result; for example, PSS.RPT. Select MAILLIST when asked for the name of





# Computer Gallery

WE MEET OR BEAT ALL PUBLISHED PRICES ON SANYO MBC-PACKAGES!

20 Hillwyck Drive • P.O. Box 7420 •

Toledo, Ohio 43615 • (419) 535-7370

## 128K RAM — 89.95

### SOFTWARE

WE STOCK ALL  
MICHTRON

AND OTHER SOFTWARE FOR  
THE SANYO AND IBM

ALL SOFTWARE IS A MINIMUM

## 10% OFF

FREE SHIPPING ON SOFTWARE

TURBO  
PASCAL  
\$44.95

TURBO  
WITH 8087  
SUPPORT  
\$81.95

WITH 8087  
CHIP  
\$239.00

### HARDWARE SPECIALS

TEAC-55B ..... \$169.00  
360K DISK DRIVE

2 TEAC-55B ..... 376.00  
with DS-DOS PLUS 360-400K

SANYO RS-232-PORT ..... 79.00

QUBIE 300/1200 SMARTMODEM ..... \$329.00  
WORKS JUST LIKE HAYES 1200 MODEM  
LOOKS JUST LIKE HAYES 1200 MODEM  
DOES NOT COST LIKE HAYES 1200

WE HAVE  
THE LARGEST  
SELECTION OF  
HARDWARE & SOFTWARE  
FOR THE SANYO PC. CALL  
OR WRITE FOR CATALOG!

### PRINTER SPECIAL

PANASONIC KXP-109U

IBM & EPSON COMPATIBLE  
GRAPHICS AND CODES  
FRICTION AND TRACKER FEED  
CORRESPONDENCE MODE

ONLY \$235.00  
CALL FOR OTHER PRINTER  
PRICES

### SOFTWARE SPECIALS

PICASSO .....	\$89.95
THUNDER CHIEF .....	31.95
TIME BANDIT .....	34.95
MAJOR MOTION .....	26.95
FREEZE FRAME .....	34.95
M-DISK .....	31.95
MI-TERM .....	71.95
CORNER MAN .....	44.95
SUPER ZAP .....	44.95
SOFT SPOOL .....	31.95
DS-DOS PLUS .....	44.95

### OES BUSINESS PACKS

Only \$59.95 Each!

CALL FOR MORE!

# MASTER III GRAPH

## WITH WINDOWS!

ULTRA FAST WINDOWS MAKE IT EASY  
AND FAST TO USE.

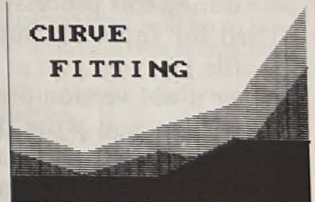
FULL SCREEN EDITOR MAKES DATA  
ENTRY FASTER THAN A SPREADSHEET.

LOADS IN DATA FROM SPREADSHEETS  
LIKE CALCSTAR!!!!

BUILT-IN SCREEN DUMP PRODUCES  
SHADES OF B & W OR COLOR!

LOADS & SAVES SCREENS TO DISK FOR  
INTERFACING WITH PICASSO AND  
FREEZE FRAME.

### CURVE FITTING



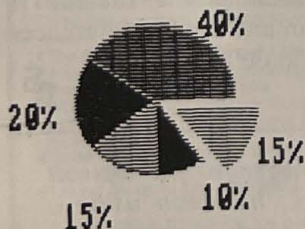
### SUPPORTED PRINTERS

IBM AND EPSON COMPATIBLES  
PROWRITER 8510A, 8510BPI  
NEC-8023  
GEMINI 10, GEMINI 15X  
QUADJET COLOR INKJET  
CANNON COLOR INKJET  
MANNSMANN TAL . MT180  
AND SPIRIT 80  
MASTER GRAPH 3

ONLY

## \$89<sup>95</sup>

ALSO AVAILABLE  
FROM YOUR DEALER

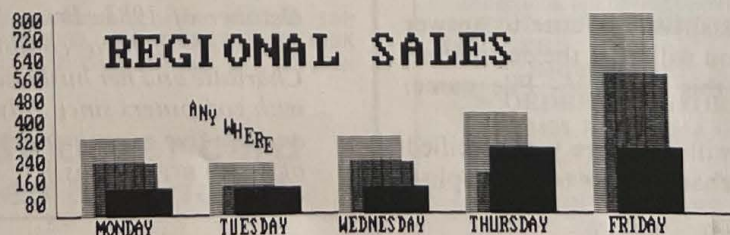


MAKES BAR, 3-D, LINE, AREA, PIE,  
EXPLODED PIE, MULTIPLE PIE, AND  
EXT ONLY GRAPHS.

TEXT MAY BE ENTERED ANYWHERE ON  
THE GRAPH IN ANY SIZE AND COLOR.

MAKES PRESENTATION, BUSINESS,  
AND STATISTICAL GRAPHS EASILY!!

## REGIONAL SALES





the form definition file. Choose all of the fields that you want in the new data file. You do not need to choose your four code fields. When you have chosen all the fields, enter CONTROL-C to go to the exit screen. On the exit screen, choose 'F' to save the form and edit the file definition.

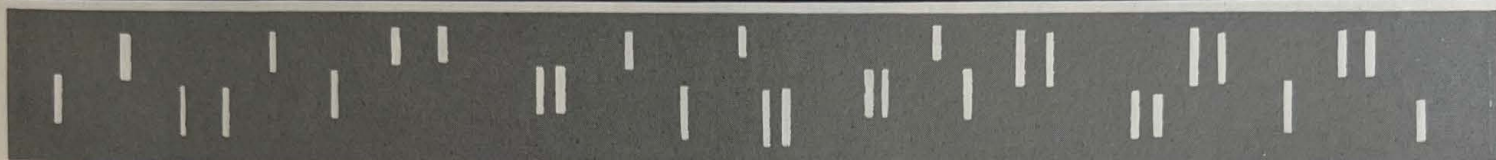
Use the RETURN key to run through the existing file definition, checking all the responses:

Next file to define or review: 001/MAILLIST  
Associated definition file: 001/MAILLIST  
Disk drive where definition file is located: \_  
Used for Input or Output: I (This is your source file.)  
Access data file: S  
Index order: N  
Disk buffer: 008  
More than one volume: N  
Enter data file name at run time: N  
Enter data file name — Disk drive: (Be sure to answer



Include If: (Leave blank.)  
CONTROL-C will take you to the report layout screen.

You may edit out the lines for the report title and date that RGEN inserted. Then move the cursor into the first report field and type CONTROL-R to redefine the field. Use



with the drive on which you will place the source data file when you run this report.) - File name: MAILLIST.DTA

Change disks: 'N' if the file will be where you specified above. 'Y' if you need to change disks to accomplish your answer above.

Include If: (You've tested this, so answer relative to whichever of your qualifiers, such as PSS, you are using first. RETURN will take you to the second file definition screen.

Now you define an output file to receive the data you will send from your MAILLIST file. Here are your possible answers:

Next file to define or review: 002/PSSLIST  
Associated definition file: 002/PSSLIST  
Disk drive where definition file is located: (Location during this process.)  
Used for Input or Output: O (This is your destination file.)  
Error if old version present or Add to it? (E/A): A ('A' will let you write data records to this file. 'E' will refuse to let you write records and respond with an error message at run time.)  
Should an index file also be written? N (You don't need one to use this file with MailMerge. If you ever want to use it with DataStar or as a reference file in a report, you can use FormSort to create an index.)

Disk buffer: 008  
More than one volume: N (I assume your list is not too big to fit on one disk.)  
Enter data file name at runtime: N  
Enter data file name — Disk drive: (Be sure to answer with the drive on which you will want the destination data file when you run this report.) - File name: PSSLIST.DTA  
Change disks: 'N' if the file will be where you specified above. 'Y' if you need to change disks to accomplish your answer above.

the RETURN key to run through the existing field definition until just after the prompt about when the field is loaded. The next prompt asks "Output field to file (Y/N)." Answer yes.

The next prompt is "File number/name." Type 002 and PSSLIST will fill in.

The next prompt is "Field number/name." Type the number for the appropriate field from your PSSLIST.DEF file.

Continue on through each field in the report that you want to write to the new data file. Each one must be redefined as above.

When you run this report, sending it to disk will give you both a PRN file, plus a data file on disk. Sending it to the printer will give you both hard copy of the records in the new data file, plus a data file on disk.

Since you want to maintain and update only your master MAILLIST file, delete the "qualified" data files and recreate them with these reports each time you need them for a mailing, because adding to an existing qualified data file will result in duplicate records.

When you have finished your first qualified report definition file, make three more copies of it, renaming them for the other three desired lists. Then use REDIT to change them to the proper references, such as the Include If statement in the input file definition and the file references in the output file definition and field definitions.



(Charlotte A. Stone, office manager for the Detroit office of the Shaw/Walker Co., has been using a Sanyo computer in her daily work routine since October of 1983. Brian M. Stone has been using a variety of Sanyo computers since May of 1983. Charlotte and her husband, Brian, have been involved with computers since July of 1978 and presently own and use five computer systems on a daily basis, three of which are Sanyos.)



## From the best resource for your Sanyo computer comes the best software deal on the market!

Each and every month of the year, **SOFT SECTOR** offers an assortment of programs for the home and office — utilities, business applications, games and more — all for the price of typing in the listings. But for the person on the move, that's a high price to pay.

Now, at long last, we introduce

## SOFT SECTOR ON DISK

Finally, no more sleepless nights, no more lost weekends! No more tedious typing and typing, debugging and debugging! Think of it: every program from the pages of **SOFT SECTOR**, ready to **LOAD** and **RUN** with only a few keystrokes!

Ask yourself how much your labor is worth. Five dollars an hour? Ten? Even 20? Now ask yourself how many hours it takes to type in and debug just one of those wonderful (but long) programs from **SOFT SECTOR**.

Several of the first issues of **SOFT SECTOR** are now out of stock, so this may be your only chance to get the programs that you've missed. And since the articles in the magazine always include instructions needed to run the programs properly, text files of the original articles are included on Volumes I and II, ready to be routed to your screen or printer with a simple **TYPE** command.

Just look at this list of programs that will be available on each disk:

### Volume I:

August/September/October 1984

- **The Gambler (Craps)**/Roger S. Heitzeg  
A sure bet for your game collection
- **Fastloan**/Michael Ecker, Ph.D.  
A program to calculate loans and investments
- **Label Maker**/Claire Gelinat  
Some BASIC fundamentals to get your mail moving
- **Font—The Custom Character Generator**/J. Weaver Jr.  
Designing and installing your own character font (including a custom designed character set)
- **The NFL Point Spread Predictor**/Bob MacDonald  
A program that lets one winner pick another
- **Goldmine**/Clayborne D. Taylor, Jr.  
A novel diversion for kids and businessmen alike

### Volume II:

November/December 1984  
January 1985

- **The Interest in Interest**/Michael W. Ecker, Ph.D.  
Determining where your best interest lies
- **Payroll System**/Mike Charlton  
Putting your 550/555 on the payroll
- **The Sounding Board**/Richard Kruse  
A software mod to add a click to your keys
- **Window On The World**/Dan Webber  
A Hi-Res graphics program to rival the best
- **The Run'Round Challenge**/J. Weaver Jr.  
A fast-paced game with sound galore
- **Does Anybody Really Know What Day It Is?**/Michael W. Ecker, Ph.D.  
Leap years, day from date, and Boolean algebra
- **Database Manager**/John M. Leshar  
Putting your information in order
- **Taking Stock In The Market**/Randolph Mateer  
A little help in determining the best

### investments

- **Sketch-It Version 2 — Expanding The Window**/Dan Webber  
A graphics editor that will amaze and astound

### Volume III: February 1985

- **Color Mixing On The Sanyo Palette**/David W. Neuendorf  
All the colors available to the Sanyo programmer
- **Sanyo Handiman**/Leonard Hyre  
Computing home renovation costs
- **Compilers And The C Language**/John D. Unger  
Both a BASIC program and a .COM file that strip the codes from *WordStar* text files
- **Incorrect Values For The Sanyo's VAL(AS) Function**/Grant C. McCormick  
A program demonstrating one of *SBASIC*'s bugs
- **The Wonders of Batch Files**/J. Weaver, Jr.  
Five useful batch files
- **Beep**/Tim Purves  
A BASIC program and .COM file that change the Sanyo's honk to a pleasant chirp

### Volume IV: March 1985

- **WizStar—Polishing A Classic**/J. Weaver Jr.  
A program that adds several new features to *WordStar*
- **The Sanyo Synthesizer**/Marcia L. Peters  
A music program for the 550/555
- **Five Card Draw**/Rodney Viessman  
Playing poker with the sharpest dealer around
- **An Exploded Pie Chart**/Felipe Lebron  
A handy, full-featured pie graph program
- **Taking A Swipe At Ambiguity**/Danny Humphress  
A program that adds a slashed zero to daisy wheel printers
- **Printing Tax Forms With CalcStar**/Randolph Mateer  
CalcStar templates for the IRS 1040 form

**SOFT SECTOR ON DISK** subscription rate is: within the U.S., \$99; Canadian rate, \$115; all other countries, \$130. **SOFT SECTOR ON DISK** single volume rate is: within the U.S., \$12; Canadian rate, \$14; all other countries, \$16.

**Use the handy order card  
between pages 80 and 81.**

## TOTAL OFFICE PLANNING **TOP** SOFTWARE presents

### The **TOP** POWER MANAGER

Special Introductory Price: \$224.95

Office Automation Through  
Powerful Database Management!

#### POWERFUL CAPABILITIES:

- ✓ A greater **STORAGE CAPACITY** than higher-priced programs.
- ✓ Each database can contain 32,767 records, with up to 150 fields in each record and 50 characters in each field.
- ✓ This menu-driven program has a real **ease-of-use** and has **SORT** and **REPORT GENERATION** capabilities more **POWERFUL** than many of the hard-to-use databases.
- ✓ **SORTING** on any field or on a combination of fields. Plus, extra power from the **"OR SORT"** and descending sort features.
- ✓ Intricate math **CALCULATING** between fields based on formulas you devise.
- ✓ The **POWER MANAGER** comes with an extensive Tutor to help you be "up and running" right away.

#### GIVE YOU MORE ABILITIES:

★ **POWER MANAGER** can create **CUSTOMIZED LETTERS, IN-VOICES, COLUMNAR REPORTS, OR LABEL FORMATS FOR MAILING!**

★ Use the **Report Generator** feature in conjunction with a text editor or word processor to write **PERSONAL LETTERS** to a **LARGE GROUP** of individuals who meet the geographic, date or monetary criteria you select!

★ Our Users put **POWER MANAGER** to work for them to do: . . . **CUSTOMER MAILINGS . . . PAST DUE NOTICES . . . INVOICING . . . SALES ANALYSIS . . . ORDER TRACKING . . . INVENTORIES . . . CREDIT, INSURANCE AND EMPLOYEE RECORDS, CLIENT PROFILE REPORTS, TRACKING STOCK PORTFOLIOS, AND MUCH MORE.**

► **THE POWERFUL BOTTOM LINE:** We take the competition head on, and . . . The **POWER MANAGER** is at the **TOP** of its class! Requires 128K. **TOP** programs run on the Sanyo MBC 550 and 555, and also are available for IBM and compatibles.

## The **TOP** FREEFORM FILER

Special Introductory Price: \$99.95

The Premier Text/Filing Program!

**SOFT SECTOR MAGAZINE** said no other filing program "can match the abilities and capabilities" of the **FREEFORM FILER** for "applications that require a lot of text, very variable search criteria, speed and efficiency."

#### UNIQUE CAPABILITIES:

- ✓ **THE OBJECTIVE:** Designed for busy and creative individuals who want the **FREEDOM** to randomly store information, but need the **POWER** to retrieve that information in seconds.
- ✓ **THE KEYWORD SYSTEM:** As you enter or edit your text, you can select any word as a **"KEYWORD"** or **"KEYPHRASE."** Each **"CARD"** can contain as many as **117 KEYWORDS**, and **up to nine pages** of text similar to a 3" x 5" card, with no field restrictions. Each **"FILE DRAWER"** can contain up to 32,767 pages!
- ✓ **THE EDIT:** Includes an onscreen editing menu, word wrap, moving lines within a page, and card duplication.
- ✓ **THE SEARCH:** Search for the **Card Title, KEYWORD**, or a **combination** of both. Plus, **"WILD CARD SEARCHES"** save time!
- ✓ **THE RESULTS:** List the titles of cards found in the search, print the cards, or write them to a disk file for later printing or use with a word processor.

#### GIVE YOU MORE ABILITIES:

- ★ **BUSINESS:** Appointments, office phone and address indexes, inventory, service calls, vendor lists, and sales orders.
  - ★ **ATTORNEYS:** Find the cases affected by new court decisions.
  - ★ **DOCTORS:** List all patients affected by new medications.
  - ★ **WRITERS AND RESEARCHERS:** For indexing, cross-referencing or cataloging.
  - ★ **PERSONAL:** The possibilities are endless . . . art and coin collections, bill paying, income tax records, and home inventory.
- NOTE:** The **FREEFORM/FILER** integrates data into the **"POWER MANAGER."**

Requires 64K

- **ORDERING INFORMATION:** **TOP SOFTWARE**  
2431 E. Douglas • Wichita, Kansas • 67211
- **OR CALL TOLL-FREE:** 1-800-255-1382 Ext.47

We accept VISA, MC, AMEX, money orders and checks.  
**NOTE:** **TOP SOFTWARE**, formerly **TMP SOFTWARE**, is a division of The United Software Co.



Sometimes it seems like all Sanyo users are interested in only one thing. If you've forgotten, this article should refresh your memory.

# The 768K Solution

By John Domingues

A quick and simple memory expansion for your Sanyo? Yes, up to one half million more bytes of memory. Added to the 256K you can already have, this will give you a total of 768K of memory. You can build your own, buy a kit, or buy the assembled and tested board.

First of all, I want to say that the information that I am going to disclose here represents a lot of work and many years of experience. For those of you who are interested in developing the best computer for the money and willing to do your own work, even though I have applied for a patent on this project, I'm going to include enough information to start from scratch and build your own memory expansion.

I would like to discuss some of the obstacles that need to be overcome when considering building an add-on memory board for the Sanyo MBC-550/555. I'll explain some of the technical problems and, for those of you who are willing to try building your own, I've included timing diagrams and schematics.

First of all, the memory expansion should be easy to install. Secondly, it should fit inside the case to protect the rest of the world from computer-generated electronic noise. Next, it would be less expensive to build if it used the Sanyo's internal power supply. Lastly, it needs to be as reliable as possible.

I decided to use a 62-pin socket on the board so that it can be plugged right onto the mother board inside the Sanyo. I also decided to use CMOS I.C.s (Notes 3 and 4). These chips (Note 2) draw current in the nanoamp range, which for all practical purposes is negligible.

Technology has boomed since the

days when the 8080 microprocessor was high tech. The memory chips used in the Sanyo are more than adequate, but use up a lot of space and power. Here I decided to go with 256K dynamic RAMs. Using the 256K chips means  $\frac{1}{4}$ th the number of memory chips for the same amount of memory. Less power and less space.

The fact that there is no "refresh" (explained later) brought off the mother board makes building a memory board a little more interesting, but I'll show you how to use the information that is available to develop the refresh that the dynamic RAMs need (dynamic RAMs are explained in just a few lines).

One part of the refresh solution is to specify the 150 nanosecond memory chip. These chips are tested by the manufacturer and guaranteed to refresh in 150 nanoseconds.

Sanyo has been good enough to bring out a signal that they call OSC IBM BUS. This signal is the one that is used to derive the CLK IBM BUS. This probably doesn't mean much yet, but note that the cycle time of OSC IBM BUS is 170 nanoseconds, which is long enough time to do a refresh. You may or may not know why we need a refresh. Maybe I can explain a little.

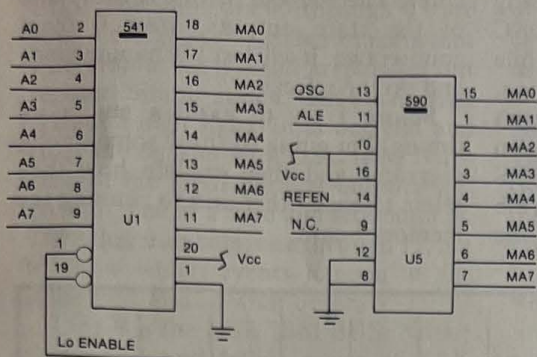
Each bit of information inside the computer is considered a one or a zero. Actually, the computer keeps ones as plus five volts and zeros as zero volts. In the dynamic RAM, each little area for bit storage is similar to a battery, but since it is so small, it loses its charge very quickly. So quickly, in fact, that it is necessary to recharge it at least every  $\frac{1}{4}$  of a second. On the Sanyo mother board there is a smart chip that handles refreshing the internal memory. Sanyo chose not to provide the signals from that chip to the outside world, probably because of the limitations of

the power supply. So we are left with developing our own refresh, refresh addressing (Note 5), and memory address decoding for memory read or write operations.

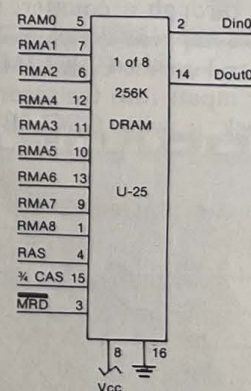
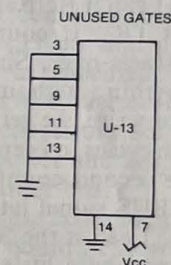
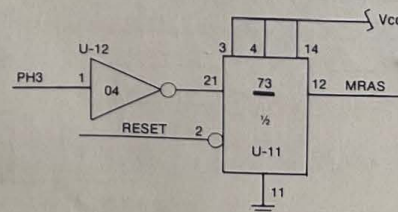
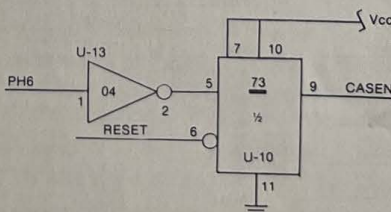
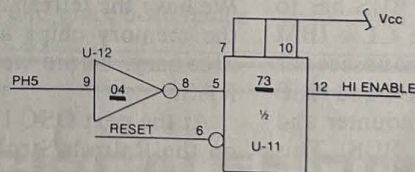
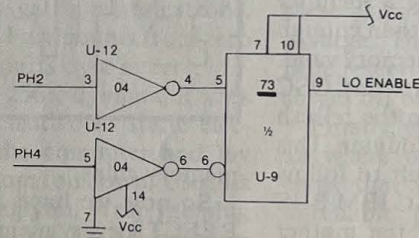
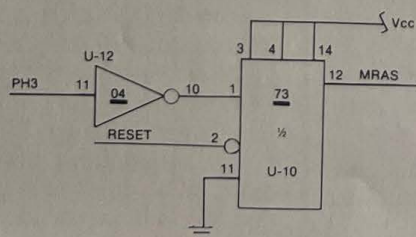
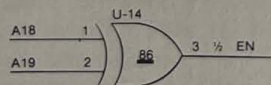
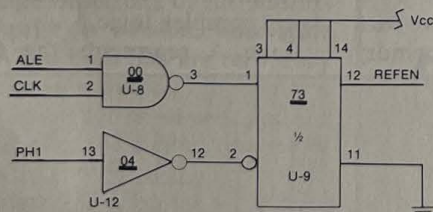
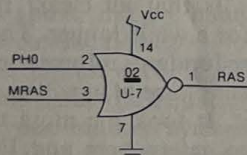
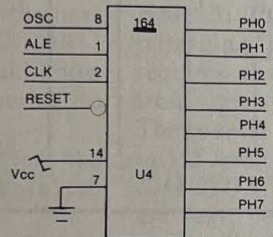
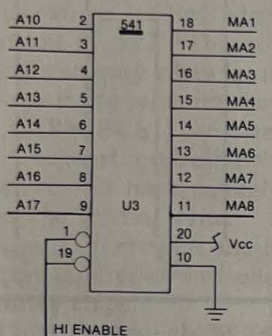
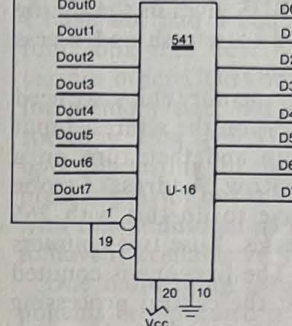
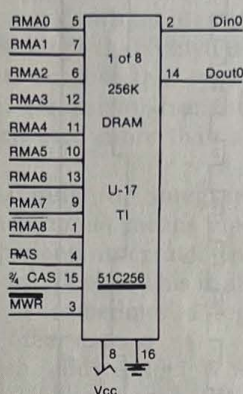
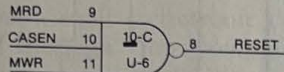
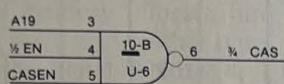
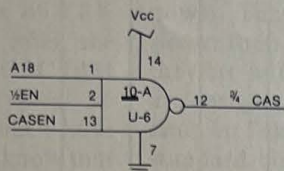
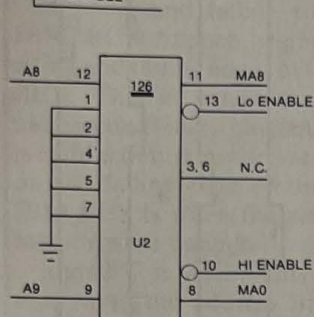
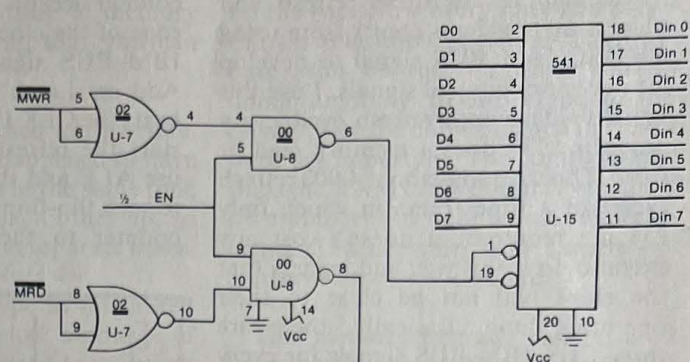
The sequence of events that needs to happen is shown next. The lines in front of each description relate to the numbers in the timing diagrams that are shown below. These show the steps that need to happen and the order in which they need to happen.

- 1) The refresh address counter needs to be incremented every memory access time. This makes sure that each address that needs to be refreshed is counted through.
- 2) The refresh address lines have to be turned on to the memory chips.
- 3) After the address lines are enabled, the Row Address Strobe (RAS) needs to be turned on for a minimum of 150 nanoseconds. This is the part that does the refresh.
- 4) Disable the refresh address counter and turn off the RAS.
- 5) Wait for the refresh addresses to turn off before turning on the next (see Note 1).
- 6) Turn on the first nine (the low order) memory address lines to the memory chips.
- 7) Set the RAS signal.
- 8) Turn off the low addresses.
- 9) Turn on the next nine (the higher order) memory address lines to the memory chips.
- 10) Turn on the Column Address Strobe (CAS) enable signal.
- 11) If the address is in either the second or third quarter of memory, then turn on the CAS.
- 12) When the read or write is finished, reset all signals to their beginning state.





- A) N.C. = No Connection  
 B) All I.C.'s need .01uF cap between Gnd & Vcc  
 C) I.C. Series is 74 HCT by National or Equivalent  
 D) OSC = OSC IBM BUS  
 E) CLK = CLK IBM BUS  
 F) CHIP Type is underlined on chip





The solution to these refresh and addressing problems comes from using the OSC IBM BUS signal to develop the necessary control signals. I use this signal to develop a refresh cycle every time the 8088 does a memory read or write. This turns out about 4,000 refresh cycles in a time frame in which only 256 are required. It doesn't cost any extra to do it this way and insures that the chips will not be close to their operating limit. Basically, there are three CLK IBM BUS signals for every read or write, and four OSC IBM BUS signals for each CLK IBM BUS. Using the OSC IBM BUS gives us the timing control we need to refresh and access expansion memory.

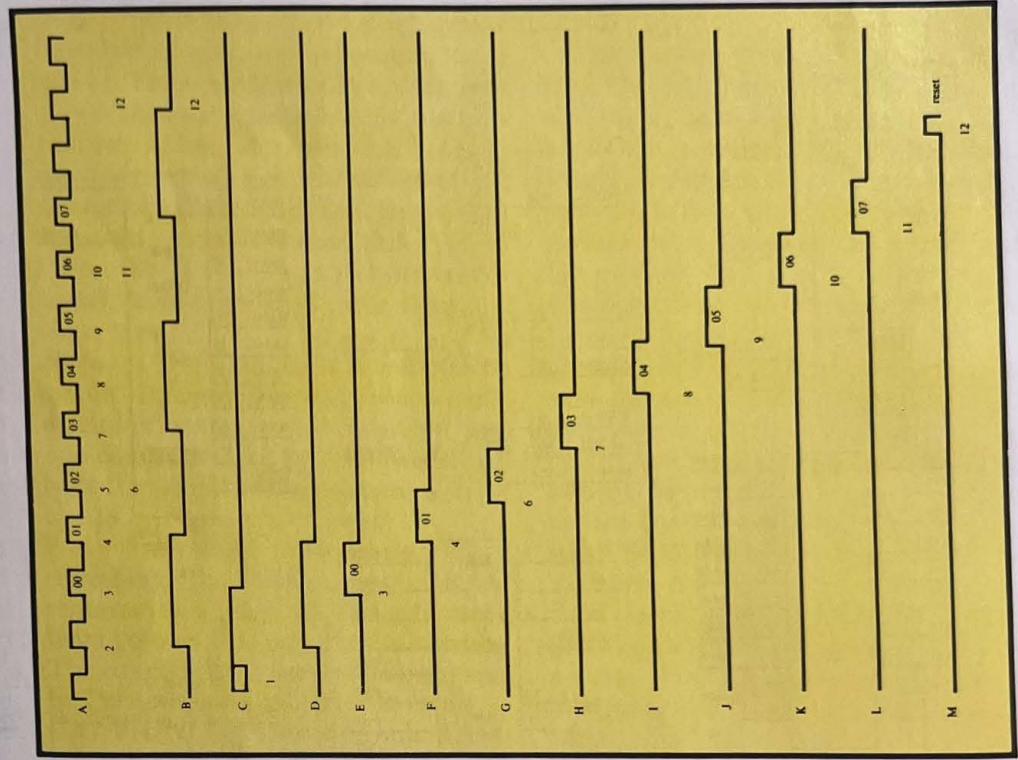
To refresh the memory chips, we need to put an address on the address input lines of the chip and then turn on a signal called Row Address Strobe (RAS). We have to do this with 256 different addresses. I use two counters in this design. The first one is counted every time that the central processing unit (CPU) does a memory read or write. I call it Refresh Address Counter (REFCTR). It counts 256 times and then starts over. Since the CPU can't do anything without doing a memory read or write, we get more than enough refresh cycles to keep our memory valid.

The second counter starts one OSC IBM BUS signal later than the refresh signal. I call it the State Counter. This part may be a little difficult to follow — hang tight. Since the OSC IBM BUS is brought directly off of the mother board, and the CLK IBM BUS has to go through a counter, the CLK IBM BUS happens typically 20 nanoseconds later. I use the CLK IBM BUS and ALE for inputs into the second counter and clock it with OSC IBM BUS. This

counter accepts only data on the rising edge of the clock pulse. The first OSC IBM BUS signal that happens while Address Latch Enable (ALE) is high, beats the CLK IBM BUS and so doesn't start the refresh cycle counter. I also use ALE and the first OSC IBM BUS to set a flip-flop that enables the refresh counter to the address lines of the

chips. The Refresh Strobe is really one of the state outputs, state 0 from counter two. It will last 170 nanoseconds and do the refresh.

Before I try to explain any more timing, I'm going to show some timing diagrams and then explain how they relate to each other and to running the memory board.



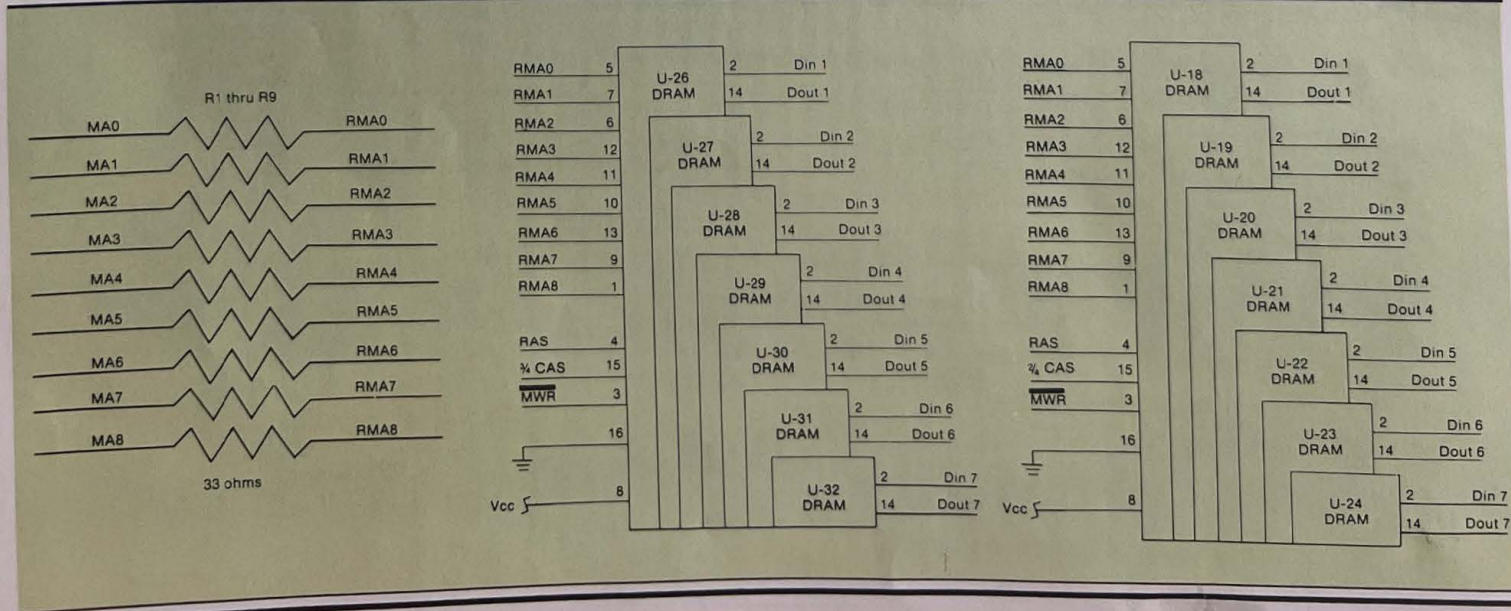
memory chips.

So now we have ALE clocking the REFCTR every memory read or write. We have the refresh address enabled to the memory chips and it happens as necessary, before we start the Refresh RAS.

At the next OSC IBM BUS, we turn on the Refresh Strobe to the memory

Is that all clear? If not, follow me for a while longer. There will be a little redundant information here, but I'm sure some of us will be able to appreciate it. It took me more than a few hours to get to here and I'm trying to help as many as possible understand some fairly complex logic.

Line A represents the OSC IBM





BUS. The numbers 00 through 07 are what I call phase or state numbers that I develop using a serial in/parallel out register. Simply stated, that means that if I put a high signal in at one end and clock the register with OSC IBM BUS, each of the eight parallel outputs will go high, one at a time and sequentially. The other numbers, one through 12, are to show which events happen at the same time and in what order.

Line B is the CLK IBM BUS. Notice that rising and falling edges of CLK IBM BUS happen slightly after the rising and falling edges of the OSC IBM BUS. This is where that typical 20 nanosecond delay happens that I have mentioned. It is important to know that on the falling edge of the third CLK IBM BUS is when the actual memory read or write happens.

Signal C is ALE. This is the signal that says "the address lines are valid now." You can see that I've put a small block at the leading edge of the high segment of ALE. This is because this signal can vary when it starts. Since it always starts sometime before the next CLK IBM BUS, I use it and CLK IBM BUS to start a refresh cycle and know that we still have enough time to do a regular read or write.

Line D represents the time that the refresh addresses are enabled to the memory chips.

Lines E through M follow the sequence numbers above and are handy for following the control flow.

Developing the address decoding for what I call the second and third quarters of the available one million bytes of memory address is very straight forward. The two high order bits of the address lines comprise a two-bit, four-state counter. When both bits are zero, they point to the low quarter of memory. With the high order bit at zero and the other bit at one, the second quarter of memory is addressed. If the high order bit is a one and the second bit is zero, the third quarter of memory is selected. Finally, if both bits are ones, the fourth quarter of memory is addressed.

I use an exclusive-OR gate here. This gate only turns on if one input is high and one is low. If both are high or low, then the exclusive-OR will not turn on.

I know many of you who are more technically inclined may be a little upset with my lack of specific syntax and some of you will be unhappy that I didn't explain everything with more detail, and probably a few will say "what did he say." I hope that many

of you will decide that a memory expansion is something that you can use and will build it.

**Note 1:** The devices used are tri-state. This means that if we happened to have two of them turned on at the same time they could try to eat each other up, so I turn them on and off at separate times.

**Note 2:** Chips — see Note 4.

**Note 3:** CMOS is a type of integrated circuit that uses very low amounts of power. These circuits used to be much slower than the standard chips, but now they are as fast. The ones that I specify are designed to work with the standard circuits. I call the chips that Sanyo uses standard circuits because that type of chip, the TTL (transistor-transistor logic), have been used more than any other type.

**Note 4:** I.C. stands for integrated circuit. Integrated circuit means many electronic components integrated into one computer logic device. This is also called a chip, or sometimes a logic circuit or many other names.

**Note 5:** Refresh addressing. When refreshing, the 256K dynamic RAM requires that each of 256 addresses, from zero to 255, gets a refresh strobe. The counter that I use counts from zero to 155 and then starts over at zero.

**CAUTION!** The 256K dynamic RAMs are very, very sensitive to static electricity. Unplug the computer and lay a sheet of aluminum foil down. Use lots — it's only helping you. Wrap the plug of the Sanyo in the foil. Lay the memory board on the foil and place both hands

on the foil. Now everybody and everything is at an equal potential. Lean your bare arms on the foil while you are doing anything to the chips or the boards with the chips plugged in. These steps are important. The company that ships the RAM chips doesn't even allow it's employees to wear nylon undergarments. Leather soles and carpets are dangerous too, so be careful.

This memory upgrade can be used from BASIC using PEEK and POKE. I write code in assembly language, so I access this memory with no problem. I have not had a chance as of yet to fully look into how MS-DOS or the various other DOSs on the market test for memory size, but it is my understanding that MichTron's DS-DOS boots up testing for this memory. I am presently laying out an expansion board with this additional memory and hope to have it available very soon in a kit.

One more thing: Most of the components are specified to run as reliably as they can. The by-pass capacitors on the CMOS chips could probably be changed, but the .33 on the memory chips need to be as specified. When these chips refresh, they use current in a surge. The .33 capacitors act like a little reservoir of power and keep these surges off of the power bus.

Finally, you can use faster logic chips anywhere on the board. I've selected chips that will not operate near any unreliable parameters, but I've also used no more than necessary to keep costs down.



## CLOCK/CALENDAR BOARD

### The Greywolf Clock/Calendar Board Gives You:

- accuracy to within seconds a month
- ease of installation, plugging into Sanyo's internal 62 pin connector
- the ability to use the same 62 pin connector for other boards since the Greywolf board does not cover the connector
- an average battery life of two years
- the ability to set time directly from the DOS
- complete owners' manual with installation and battery change instructions
- works with any 550 series Sanyo computer, including the Greywolf Super System.

**\$139.95**

**GREYWOLF  
TECHNOLOGIES**

18 Dog Lane • Storrs, CT 06268

**(203) 928-6555**

**(203) 928-3654**



# Plumbing For Beginners

**P**lumbing is not just a science, a skill and an art — it's a religion! Since the ancient days of the Roman aqueducts, the masters of this religion have been given holy status in society. We willingly shower them with precious gifts (at the rate of \$40 per hour) to route the holy waters into our dwellings. But recently a new breed of plumbers, known as "programmers," have challenged the ancient ones. Instead of water, they route the words of man through electronic paths and pipes. As with their ancestors, their followers pay them great sums for their wealth of knowledge. It is my belief, however, that even the laity of this faith, the "users," can share in the mystical rites of data routing. It is through this month's column that I hope to achieve this goal.

You may have noticed references to "pipes," "routes" and "filters" while skimming through your MS-DOS manual. Chances are that you didn't pay much attention to their meanings or uses, but rather, you decided to leave those matters to the experts. That would be a mistake. They are the stuff that puts MS-DOS on a higher plane than other operating systems by allowing you to do some unusually powerful things without special programming.

### Alternate Routes

We used a form of routing some time ago with the COPY command. If you'll remember, we used COPY to copy data from one file or device to another file or device. There is a "purer" form of routing available, which actually redirects the output of a DOS command or a program to an alternate device or file. The symbol used for "route to" is

the greater-than sign (>). Try the following command on your computer:

```
DIR > TEST
```

ENTER

The computer's disk spun a bit and another MS-DOS prompt appeared. Seemingly, nothing happened; but the computer *did* do some work, as you can see when you type this command:

```
TYPE TEST
```

ENTER

The first command line produced a directory of the default disk drive, but instead of putting the directory on the display, it was routed to a file called TEST. When you TYPED the file, you saw that it contained the directory of the disk.

Output of any command or program may be routed to any file or output device (BASIC programs are an exception to this rule). You can even route output to the COM: device to send it to another computer via a modem. If you have a printer connected to your computer, try this command:

```
DIR > PRN:
```

ENTER

The output of the DIR command was routed to the line printer. What do you think this command would do?

```
TYPE TEST > PRN:
```

If you guessed that it would make a printed listing of the file, TEST, you're absolutely right. Do you remember the other way of getting a printout of a file? Remember the COPY command?

When you redirect output of a command to a file with '>', the file is

DANNY HUMPHRESS  
Soft Sector Technical Editor

*[Editor's Note: Most of the commands covered in this installment of "Mastering MS-DOS" are not supported by MS-DOS Ver. 1.25. The filters mentioned, SORT, MORE and FIND, are not included on the MBC-550/555 system disk, but are integral parts of the MS-DOS operating system nonetheless. They are included on the system disks packaged with the MBC-775 and with Sanyo hard disk drives. Also, MORE is supplied on the Video RAM Board system disk and SORT, at least, is included on the utilities disk available for \$10 from Sanyo Business Systems Corp., Customer Service Division, Computer Division, 51 Joseph Street, Moonachie, NJ 07074.]*



either created, if it does not exist, or it is erased and its data replaced with the new information. If you want the output of the command to be *appended* to a file, use a double greater-than (>>) instead of the single sign. For example, DIR>>TEST would append the output of the directory to the file called TEST.

The above examples all redirect the *output* of a command or program to an alternate place, but there is also a way to have a command or program get its *input* from an alternate source. This is done with the use of the "route from" symbol (<).

As with '>', '<' can use any device or file. The difference is that the device or file becomes the *input* for the command rather than the output. Hence, if a device is specified, it must

the file first. Use EDLIN or the following command to create DATEFILE with "1-25-85" in it:

```
COPY CON: DATEFILE      ENTER
1-25-85 CTRL-Z          ENTER
```

Now that "1-25-85" is in DATEFILE, we should be able to use it as input for the DATE command. Try it again:

```
DATE < DATEFILE          ENTER
```

The computer responded just as if you had entered "1-25-85" from the keyboard.

You might not see the practicality of this now, but you'll soon discover that this feature can be quite handy — especially for those frequently used

**"Recently a new breed of plumbers, known as 'programmers,' have challenged the ancient ones. Instead of water, they route the words of man through electronic paths and pipes."**

be an *input* device. The console keyboard and the communications port are input devices, while devices such as the line printer are output only. (This subject was discussed at length in an earlier installment of "Mastering MS-DOS").

To effectively demonstrate "route from," we'll need to use a command that requires input from the user. The DATE command is a good example since it requires that the user input the date from the console keyboard. Let's tell DATE to get its input from a file. Type this command:

```
DATE < DATEFILE          ENTER
```

What? You got a "file not found" error? Of course you did; DATE was trying to get its input from DATEFILE, but ran into one little problem — DATEFILE doesn't exist! We must create

programs or commands that require you to enter the same menu selections or options each time you run it. If you put these keystrokes in a file just once, you can route the input of the command or program to come from your keystroke file and then just sit back and watch your computer run itself.

The idea of automating programs first came to me while I was using an IBM PC with a Tallgrass hard disk. The Tallgrass hard disk has a provision for making backups onto streaming tape cartridges, but it requires that you go through the acrobatics of a backup utility program to first erase the tape and then copy the hard disk to it. By putting the keystrokes required to run the program in a file, I was able to go off and let the computer do its thing — automatically. There have been dozens of times since then when I've used this technique.

# SANYO FOR LE\$\$

**Supplement**—Commands that Sanyo omitted from its 550/555 Operations Manual. A "must" for only \$5.00.

**Scotch DSDD Diskettes**—Box of 10 only \$18.00 (while supplies last).

**Keyboard Extension Cable**—4' Keyboard Extension Cable— **Special \$15.95.**

**IBM to Sanyo**—Run IBM BASICA Programs on your Sanyo—"Ready to Run"—We've done the work for you. **Incredibly only \$39.95.**

**3M/Scotch**—Diskette Drive Cleaning Kit - Only \$17.95.

**CPeMULATOR™**—Run CPM on Sanyo for only \$79.95.

**200 + Programs**—Over 200 Sanyo compatible programs listed by category, program name, company name and telephone numbers. **Only \$4.00.**

**Sanyo Video Board**—Run Lotus-Multiplan-PFS Series and many other IBM Programs. Includes MS-DOS 2.11 and GW Basic. Available Now—\$199.99.

**Key Plus Program**—Program over 3 dozen individuals function keys for use with Basic. **\$19.95.**

**Sanyo Music Box**—Add music and sound to your Sanyo. Complete for only \$29.95.

**COPYLINK™**—Communications software "ready to run" on your Sanyo. Complete flexibility and ease for only \$79.95.

**128K Memory Upgrade**—Do it yourself and save. (150-NS) Now only \$72.95.

**Unprotect**—Unprotects programs saved from Sanyo Basic and NOW IBM Basic. New Low Price \$39.95.

**RS232**—Serial Card—Communications Board. Only \$69.95.

**Protect Your Investment**—Custom-Made Sanyo Computer Dust Covers \$13.95 to \$29.95.

**Technical Newsletter**—\$15.00 per year.

**HARDWARE PRICES-LOW \$\$**  
**Sanyo Software Catalog-FREE**

**MODEMS-300/1200 - ON SALE! CALL**

**Sanyo Tutorial**—Step-by-step instruction in the use and programming of Sanyo 500/555 Computer. "Bonus Pack" includes training tape for Wordstar/MailMerge. Only 39.95.

**Free Catalog**—of all products available.  
★ \$2.00 postage and handling charge ★

★ COD orders extra ★  
★ Dealers inquiries invited ★  
★ Check, Visa, Mastercard and Money Order ★

**BLOCK MARKETING, INC.**  
6009 Wayzata Blvd., Suite 102B  
Minneapolis, MN 55416  
(612) 546-3776

(Block Marketing is a recognized Sanyo Dealer.)  
\*MN residents must add 6% Sales Tax.



# PRICE CHECK

## COMPUTERS

SANYO 550(1 160K)	\$650.00
SANYO 555(2 160K)	\$855.00
SANYO 550-2(1 320K)	CALL FOR PRICES
SANYO 555-2(2 320K)	CALL FOR PRICES
SANYO 555-4(2 640K)	\$1295.00
SANYO 770 (PORTABLE)	CALL FOR PRICES

## ACCESSORIES

160K DRIVE	\$120.00
160K DRIVE W/SOFTWARE	\$289.00
360K DRIVE	\$175.00
360K DRIVE W/SOFTWARE	\$365.00
800K DRIVE	\$195.00
800K DRIVE W/SOFTWARE	\$449.00
VIDEO BOARD	\$189.00
RS-232C 550	\$65.00
MEMORY 128K 550	\$90.00
AUTO MODEM 550 (300 BAUD)	\$199.00
AUTO MODEM 550 (1200-300)	\$315.00
12" HI-RES GREEN	\$110.00
9" HI-RES GREEN	\$85.00
12" RGB COLOR	\$385.00

## PRINTERS

PANASONIC 1091	\$295.00
1092	\$365.00
OKIDATA 82A	\$295.00
83A	\$529.00
92P	\$375.00
93P	\$585.00
84P	\$685.00
EPSON RX-80	\$254.00
RX-80FT	\$349.00
RX-100	\$450.00
FX-80	\$467.00
FX-100	\$670.00
SANYO PR-5000	\$415.00
PR-5500	\$595.00
SILVER REED 400	\$275.00
500	\$335.00
550	\$425.00
770	\$755.00
JUKI 6100	\$445.00
LEADING EDGE LQ25	\$525.00
PRINTER CABLE	\$22.00

## SOFTWARE

CP/M-86 OPER SYSTEM	\$90.95
CONTINENTAL HOME/ACC	\$105.00
ACCOUNTING SYSTEM	\$360.00
INVESTMENT MANAGER	\$179.95
SMARTKEY II	\$82.00
CP/M EMULATOR	\$89.00
COPYLINK	\$89.00
SANYCOM	\$89.00
FLIGHT SIMULATOR	\$45.00
CASH MAN	\$31.00
DEMMON SEED	\$31.00

MAXELL	TDK
SS/DD \$22.00	SS/DD \$19.95
DS/DD \$26.95	DS/DD \$24.95

## FREE SHIPPING.

VISA/MC ORDER PLEASE ADD 3%. MONEY ORDER  
CASHIERS CHECK, WIRE TRANSFER ACCEPTED  
PRICES & AVAILABILITY SUBJECT TO CHANGE  
WITHOUT NOTICE. ALLOW 2-3 WEEKS DELIVERY

## SANYO CITY

1708 NW FEDERAL HIGHWAY  
STUART, FLORIDA 33494  
(305) 692-2455

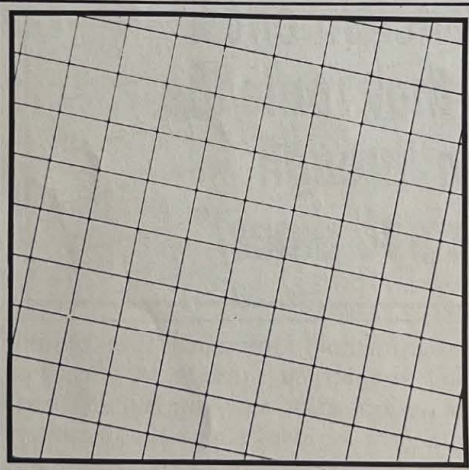
Some commands, called "filters," are ready-made for alternate routing. SORT is one such filter. It accepts its input from the keyboard, a file, or other device, sorts the lines, and sends its output to the screen (or another device or file). Type these commands:

```
DIR > TEST          ENTER
SORT < TEST          ENTER
```

The first command, as you have learned, redirects the output of the DIR command to TEST. The second command line has the SORT filter program get its input from TEST and display the sorted output on the screen. Since TEST was simply a file used for input, its contents did not change — only the output on the screen was sorted. What do you suppose would be the command if we actually wanted TEST to be sorted? The input would be TEST and the output would also be TEST. Try this command:

```
SORT < TEST > TEST  ENTER
```

SORT would take its input from TEST, sort it, and redirect the output back to TEST. The result is a sorted



TEST file. TYPE it to see for yourself.

To route the output to the printer, the command would be:

```
SORT < TEST > PRN:  ENTER
```

## Pipes

In the above example, we sorted the directory by first redirecting the directory to a file and then sorting the file. Wouldn't it be simpler to bypass the file entirely and just sort the directory? With what you know so far, you might try the following command:

```
SORT < DIR            ENTER
```

But, that command will not work

since DIR is neither a filename nor a device. Should you try this command, you would get a "file not found" error because SORT is expecting DIR to be a file. You *can* redirect the output of one command to the input of another, however, with the use of "pipes."

The pipe symbol (`|`), causes the output of the command or program to be "piped" to another. Try this command (the `|` is located above the backslash key):

```
DIR | SORT            ENTER
```

This command caused the output of the DIR command to be piped to the SORT filter. SORT sorted its input and displayed the results on the screen. With this knowledge, how would you get a sorted directory on the printer? This is a multiple choice question:

- (A) DIR | SORT | PRN:
- (B) DIR | SORT > PRN:
- (C) Either A or B

The first choice, A, is incorrect because you are attempting to pipe the output of SORT to the printer. You only pipe to a command. Since PRN: is not a command or program, but a device, this line would give you a "bad command or filename" error.

The correct answer is B. You are piping the output of DIR to SORT and then redirecting the output to the printer.

The combinations of pipes (`|`) and redirectors (`<` and `>`) can look confusing at first glance. When you take a few moments to analyze what you are trying to accomplish and if you keep in mind the difference between commands, devices and files, it soon becomes obvious.

Today, we've covered what seems to be a complicated subject, but I think you'll find that with a little practical use, you'll get the hand of redirecting and piping in no time. We'll continue our discussion on piping next month with a closer look at the filters, SORT, MORE and FIND. Until then, remember your sacred task — experiment and learn.

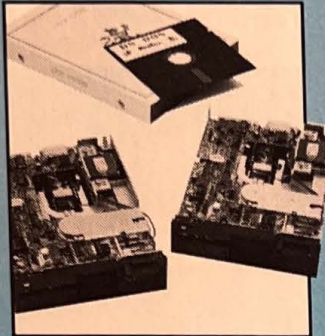


(Danny Humphress, *SOFT SECTOR's* Technical Editor, is the owner of a computer software and consulting firm in Louisville, KY. Danny brings to *SOFT SECTOR* his extensive experience with small business computers and applications software.)



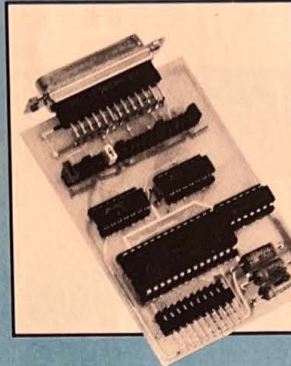
# Three Reasons Why J&M Systems is the Leader in Sanyo Peripherals and Upgrades

PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED  
PRICES SLASHED



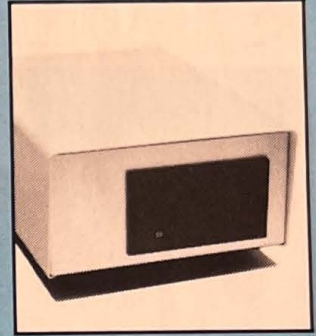
## 1. Drive Upgrade Kit

This kit allows you to upgrade your 160K disk drives to 360K capacity. You receive 2 disk drives, MS-DOS 2.1 operating system, and installation instructions. The upgraded drives will open the door to more IBM software. \$384 \$349 for either the 550 or 555.



## 2. RS-232 Board

Our board is better than "Sanyo compatible." With the J&M Systems RS-232, you can fully configure I/O lines to match your system needs. Buy our board for the same price as theirs and receive extra configuration ability FREE. Just \$99. \$45.



## 3. 5Mbyte Hard Drive

5Mbyte capacity hard disk drive complete with manual, host adapter and software. Installs in minutes. Only \$795. While supplies last! 10 and 15Mbyte (\$1095) drives also available.

**Dealer Prices  
Also Available**

\*DS DOS is a registered trademark of MichTron

To order, fill out this coupon or call (505/292-4182).

I'd like more information on these products:

☐ Drive Upgrade ☐ RS-232 ☐ 5Mbyte Hard Disk

Send me the following:

Qty	Item	Unit Price	Total
_____	Drive Upgrade	\$384 \$349	_____
_____	RS-232 Board	\$99 \$45	_____
_____	5Mbyte Hard Disk	\$1,195 \$795	_____
_____	15 Mbyte Drive	\$1,995 \$1,095	_____

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ ZIP \_\_\_\_\_

For those ordering with MC of Visa:

Card # \_\_\_\_\_ Exp. date \_\_\_\_\_

Signature \_\_\_\_\_

**J & M SYSTEMS, LTD.**

15100-A CENTRAL SE  
ALBUQUERQUE, N.M. 87123  
505/292-4182



# SIMPLE MATH FUNCTIONS

By Fred Blechman

Everyone knows that computers are "number crunchers." Arithmetic operations like adding, subtracting, multiplying and dividing are easy to do on a computer, and probably will account for the majority of mathematical functions you'll be involved with. I will go somewhat beyond that for the remainder of this article, but will not cover all the math statements in Sanyo BASIC in detail.

## Simple Arithmetic

We've already used the standard computer symbols for addition (+), subtraction (-), multiplication (\*) and division (/) in previous programs.

What may be confusing to you is how the computer processes the sequence of operations and parentheses. You can have many sets of nested parentheses and, in fact, should use parentheses to combine operations. The computer scans a program line from left to right. If calculations are involved, priorities exist. Parenthetical expressions are evaluated first, starting with the innermost parentheses and working outward. Within each expression, multiplication and division are done before addition and subtraction, working left to right. If there is any chance of confusing how numbers are to be treated, use parentheses!

For example, what is the value of 'X' in this "formula," assuming the value of 'A' is 2?

$$X=15*A+10/5$$

The common "human" way to evaluate this would be to multiply 15 by the value of 'A', resulting in 30 (since  $A=2$ ), and then add 10 (giving you 40), then dividing the total by 5 for a final result of  $X=8$ .

The computer, however, first multiplies and divides, with subtotals of 30 and 2 added together for a final result of  $X=32$ . Quite a difference!

To avoid the human confusion in interpreting this line, use parentheses as follows:

$$X=(15*A)+(10/5)$$

Now both you and the computer understand how the expression will be evaluated.

## DEFining Numbers

Sanyo BASIC allows calculations of numbers with either integer, single-precision or double-precision accuracy.

Unless otherwise instructed, numbers are treated in single-precision, displaying six digits (and holding a seventh digit in memory). Although not required

*(Fred Blechman, an acknowledged authority on home computers, has written several articles and books related to microcomputers. He is self-taught in electronics and computer BASIC programming and specializes in writing for beginners. This article is based on material from a forthcoming book by the author, Sanyo MBC-550/555 Beginner/Intermediate Guide, soon to be published by Holt, Rinehart and Winston, a division of CBS College Publishing.)*

Copyright© 1984 by Fred Blechman.



unless a variable has a previous use otherwise, an exclamation point (!) following a variable defines it as a single-precision number.

Double-precision displays 16 digits, and the variable is followed by the pound (#) symbol.

An integer is a whole number — no decimal places — and is shown by following the variable name with the percent (%) sign.

Note: Integer numbers are limited to the range from -32768 to +32767. This is often overlooked and can lead to program crashes with an "Overflow" error.

Integers use the least memory and are processed faster. Conversely, double-precision numbers use the most memory and are processed slower. Single-precision numbers are in between, in both memory use and speed of processing.

variable A will be an integer unless redefined later.

### Absolute, Sign And Integer Values

Normally, a number has a positive or negative value. However, `ABS(X)` will treat X as a positive number, regardless of sign.

Occasionally you may wish to evaluate the sign of a number to see if it is positive, negative or zero. `SGN(X)` will result in a +1 if the number represented by X is positive, a -1 if the number is negative, and a 0 if the number is 0.

The `INT` function always rounds a number down to the next whole number. Because it rounds down, 3.9 becomes 3 and -3.1 becomes -4.

The `FIX(X)` function is similar to `INT`. It drops the decimal part of a number, retaining the sign. For example, `FIX(-234.567)` returns -234 with no decimal. Notice, however, that it does

Notice that, because of the calculation shown, these numbers are rounded both up and down in the conventional manner. If the third decimal place is 5 or more, the second decimal place has one added.

To get three decimal place conversion, change both 100s in Line 20 to 1000. For one decimal place, change the 100s to 10. This is a very handy subroutine.

### Modulus Of A Number

If you divide two numbers, the result is an integer and a remainder. The `MOD` function gives you the remainder. The numbers are first rounded off to the closest integers before division. Therefore, `PRINT 66.49 MOD 15.49` would result in 6 (66 divided by 15 has a remainder of 6), but `PRINT 66.50 MOD 15.5` results in 3 (67 divided by 16 leaves a remainder of 3.)

### Square Roots

A commonly used function is `SQR(X)`, which returns the square root of the variable X. Thus, `PRINT SQR(225)` will result in 15, and `SQR(30*10+16)` equals 17.7764. Since multiplication comes before addition, `30*10+16` equals 316, and the square root of 316 is 17.7764 in single-precision.

### Logarithms And Exponents

The use of "natural" logarithms is generally confined to mathematicians and engineers. Unlike "common" logarithms, which use a base of 10, natural logarithms use a base 'e', which is equal to 2.7182818284+. Sanyo BASIC calculates natural logarithms with the `LOG(X)` function, and returns the value of 'e' raised to the X power with `EXP(X)`.

Natural "logs" can be converted to common logs by multiplying the natural log by .434294. Common logs can be converted to natural logs by multiplying the common log by 2.302585.

A common logarithm table shows that the log of 2 is 0.3010. `PRINT LOG(2)` gives you .693147 as the natural log of 2. Multiply this value by .434294 and you get 0.30103 — pretty close to the .3010 from the common log table.

Going the other way, `PRINT EXP(.693147)` and you get 2. If you will be using these expressions, you probably already know how, so we won't dwell on them here.

### Trigonometric Functions

Sanyo BASIC only directly provides four "trig" functions, but the others can

“Prefixing a number with the ampersand alone means the number is an octal number. Prefixing a number with both an ampersand and a capital ‘H’ means the number following is a hexadecimal number. No prefix indicates a decimal number.”

### Defining Variable Types

In addition to the use of !, # and %, you can `DEFINE` the use of particular variables as integer, single or double-precision numbers with `DEFINT`, `DEFSNG` and `DEFDBL`, usually used near the beginning of a program. For example, `DEFDBL A,B,R,V` would make all variable names beginning with the letters A, B, R or V as representing double-precision numbers. You could also have a range, such as `DEFINT A-G` to define all variables beginning with the letters A through G as integers.

The functions `CINT`, `CSNG` and `CDBL` are used to change the classification of a variable from that previously assigned. For instance, `IF A=123.456, PRINT CINT(A)` will result in the number 123 only — no decimal places — and the

not round down to the next whole number. Using `INT(-234.567)`, the result would be -235.

### Two-Place Decimals

You can convert calculated numbers to two-place decimals by combining the `INT` function with some simple math. Take the target number, multiply it by 100, add .5, take the `INT`eger of the result, and then divide that by 100. Listing 1 shows an example, with a sample `RUN` shown in Figure 1.

Line 10 selects a random number up to (but not including) 100. Line 20 `PRINT`s this single-precision number with four to six decimal places, then calculates and `PRINT`s the two-decimal place conversion. "Trailing zeros" after the decimal are not shown.



be derived. The SIN, COS, TAN and ATN (sine, cosine, tangent and arctangent) functions are described in any trigonometry textbook.

You are probably used to trig functions being expressed in "degrees," but most computers calculate and display these values in "radians." A radian is the number of degrees included in an arc of a circle whose length is equal to the radius of the circle.

A circle, which contains 360 degrees, has a circumference of  $2 \cdot \text{PI} \cdot \text{radius}$ , where PI equals 3.141593+. Therefore,

an arc equal to the radius, a radian, would be equal to  $360/(2\pi)$  or  $180/\pi$ , which is 57.29578+ degrees.

Keep these conversion factors and formulae handy:

```
degrees = radians*(180/3.141593)
radians = degrees*(3.141593/180)
1 degree = .01745329 radians
1 radian = 57.29578 degrees
cotangent of X = 1/TAN(X)
secant of X = 1/COS(X)
cosecant of X = 1/SIN(X)
arcsine of X = ATN(X/SQR
(-X*X+1))
```

$$\arccosine \text{ of } X = -\text{ATN}(X/\text{SQR}(-X*X+1)) + 1.5708$$

## Other Number Systems

The octal and hexadecimal number systems are used by advanced computer programmers, and a detailed explanation of their derivation and use is beyond the scope of this article. However, it is common to see hexadecimal numbers, usually identified with the capital letter 'H' following the number, used to identify computer memory locations.

Sanyo BASIC provides a means to enter octal and "Hex" numbers into programs and memory with the use of the ampersand (&) symbol. Prefixing a number with the ampersand alone means the number is an octal number. Prefixing a number with both an ampersand and a capital 'H' means the number following is a hexadecimal number. No prefix indicates a decimal number.

For example, PRINT &H7FFF results in 32767, the decimal equivalent of the hexadecimal number 7FFF, and the maximum number this function handles. PRINT &O305 results in 197, the decimal equivalent of octal 305.

OCT\$ and HEX\$ do just the opposite. They convert from integer decimal (up to 65,535) to octal and hexadecimal respectively. PRINT OCT\$(197) will result in the octal number 305. PRINT HEX\$(32767) results in 7FFF.

## Defining A Function

The DEF FN statements, used together, DEFINE a FUNCTION as a special variable. Whole books have been written about DEF FN, so it would be hopeless to try to cover it in any depth here. Listing 2 shows a program that uses DEF FN to draw a large sine wave on the screen, as shown in Video Print 1.

Line 20 establishes the function  $F$  and Line 40 plots the points on the screen with scaling factors for horizontal and vertical height. Hit BREAK to stop the program.

**Next Month**

Moving right along in our training series, next month we will cover the intricacies of entering data into a computer's memory from the keyboard. Among the most powerful commands in BASIC are the READ/DATA statements and we must learn to make the most of them in order to complete "Basic Training."



# PRICKLY-PEAR SOFTWARE

QUALITY SOFTWARE FOR THE SANYO 550 SERIES

★ ★ ★ TWO NEW PROGRAMS ★ ★ ★

**PRICKLY-PEAR DATAPACK** — Solve those tedious problems of organizing all your important data. This command-driven "standalone" package comes with an easy-to-learn set of instructions. Twenty commands are available for defining new databases, retrieving, sorting, reporting, single-or-multiple record updating, joining and projecting, etc. With the plethora of instruction guides and "help" screens available online, even a new user will have no trouble creating and using large databases; no programming knowledge is required.

Datapack will output reports to your printer, console or disk file. Let the program handle everything or define your own optional page headings, column order, breaks (with sums/counts/averages etc.) and summaries.

To see why the **PRICKLY-PEAR DATAPACK** is the best relational database program for your money, write for more information. DATAPACK requires 128K. It comes in a quality binder with 40 pages of documentation and 2-disks. **\$150**

**FORBIDDEN TEMPLE** — If you love adventure, fantasy, magic spells and dungeons with monsters, this is the game for you. Before entering the **FORBIDDEN TEMPLE** you will roll up your character. Select the right combination of strength, intelligence, dexterity and constitution and bargain with the wily trader to buy your weapons and spells. Choose carefully or you may not survive the **FORBIDDEN TEMPLE**.

The full color graphics features a realistic three dimensional window screen display that takes you into the temple. But don't enter the **FORBIDDEN TEMPLE** alone! This game has a three player option and, of course, you can save the game in progress.

The high priest of Capapus is the evil Maleficus. As his power and riches grew, so did his fear of losing his great wealth. Search for the gold of Maleficus hidden deep in the **FORBIDDEN TEMPLE**.

Like all Prickly-Pear Software, it is packaged in a quality vinyl library case. **FORBIDDEN TEMPLE** requires 256K and one disk drive — **\$39.95**

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

**PERSONAL FINANCIAL MANAGEMENT SYSTEM** — It allows up to 99 income and expense accounts, maintains budgets, graphs, transaction journals, income and expense statements and balance sheets. **\$49.95**

**VIKING** — This famous simulation of running a Norse holding while you try to become King or Queen is finally available for your Sanyo. **\$34.95**

**FOR ORDERS CALL  
1-800-223-5369 EXT. 256**

Your Personal check is welcome - no delay. Include \$1.50 shipping for each program ordered. (Shipping free on \$50.00 or larger orders). AZ residents add 7% sales tax. Orders shipped within two days.

Dealer and author inquiries are always welcome. Canadian dealers should contact Kelly Software Distributors, Ltd., P.O. Box 11932, Edmonton, Alberta T5J-3L1 (403) 421-8003

**Author Inquiries Welcome**

Send Order To **PRICKLY-PEAR SOFTWARE**

2640 N. Conestoga Ave.  
Tucson, Arizona 85749  
(602) 749-2864

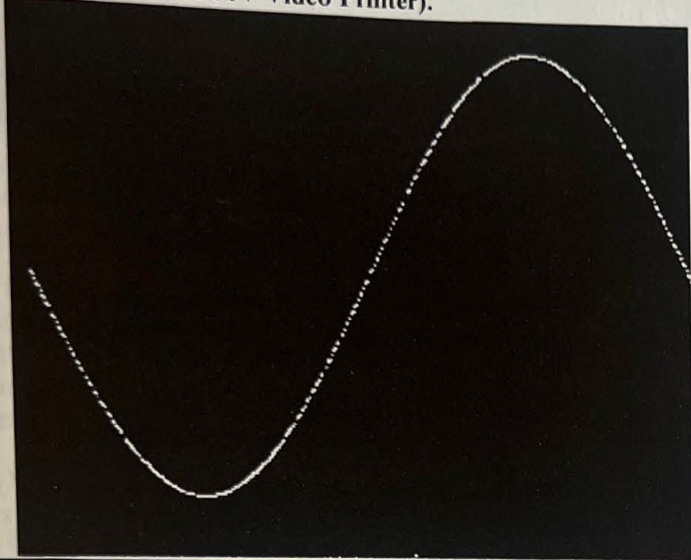




**Listing 1: Two-place decimals.**

```
10 X=RND(1)*100
20 PRINT X,INT(X*100+.5)/100
30 GOTO 10
```

**Video Print 1: Sine wave with DEF FN (made with Mitsubishi P50V Video Printer).**



**Listing 2: Using DEF FN.**

```
10 CLS
20 DEF FNF(A)=SIN(A*1.74533E-02)
30 FOR A=1 TO 360
40 PSET (A*(639/360),95*FNF(A)+95)
50 NEXT A
60 GOTO 60
```

Figure 1:	24.2642	24.26
Two-place decimals.	36.204	36.2
	49.0288	49.03
	78.7784	78.78
	55.6541	55.65
	80.6552	80.66
	8.78893	8.79
	65.0762	65.08
	24.6426	24.64
	13.0964	13.1
	8.48986	8.49
	51.0811	51.08
	92.1647	92.16
	38.212	38.21
	71.5687	71.57
	53.9802	53.98
	44.1613	44.16



## RENT THE PUBLIC DOMAIN!

Public Domain Software isn't copyrighted!  
Business-Educational-Games-Graphics-Finance  
Utilities, and more.....Hundreds of useful  
programs you can rent and copy yourself.

25 VOLUME LIBRARY FOR THE SANYO 550/555  
SAMPLE DISK (15 programs).....\$ 5.00  
VOL 1-25 (25 Disk sides).....\$ 35.00  
550/555-VIDEO BOARD, 775 or IBM OWNERS  
200 VOLUME IBM PC/MS-DOS.....\$ 200.00  
VOL 1-50 (50 Disk sides).....\$ 50.00  
Rental is for 7 days, add \$7.50 for shipping plus  
Refundable Security Deposit of \$2.00 per volume.

Send \$5 for sample disk or write for more information  
**FUTURESYSTEMS**, BOX 3040, VISTA, CA 92083

## INTRODUCING SOFT SECTOR ON DISK

DETAILS ON PAGE 35

**SENSIBLE SOLUTIONS LANGUAGE -  
A COMPLETE INTERACTIVE DATA BASE  
FOR THE SANYO 550 SERIES COMPUTER**  
(hard disk storage recommended)

**AVAILABLE AT YOUR SOUTHERN CALIFORNIA  
SANYO DEALER**

HAMMER INDUSTRIES, INC.  
5482 OCEANUS DRIVE, SUITE B  
HUNTINGTON BEACH, CA 92649

(213) 598-8869

(714) 898-7324

## 512K & 640K UPGRADE

**512K KIT-REQUIRES LESS THAN 30 MINS. TO INSTALL!**  
100% Fully Compatible — With Existing Hardware & Software!  
**PRE-ASSEMBLED KITS** — Use existing internal slots on main  
PC board plus 6 SOLDER JOINTS — Switchable from 256K  
to 512K!

128K to 512K Upgrade — (No Software) Kit #114 = \$239.95

256K to 512K Upgrade — (No Software) Kit #116 = \$194.95

Bundled Software Package —

DS-DOS Plus 1.25 or 2.11 (Required to access added RAM),  
M-DISK, AND PRINT SPOOLER ADD = \$75.00

640K RAM BOARD - COMPLETELY PLUG-IN — USES 256K  
RAMS — MAINTAINS EXPANSION BUS \*\*\*\*\* (Call for pricing  
and Delivery) \*\*\*\*\*

**TAMPA-BAY DIGITAL**

**(813) 527-7145**

**5620 - 4th Street North, St. Petersburg, Fl.  
33703**

### Bogged Down by a Heavy Duty Word-Processor? Try W-ED!

the simple-to-use writing tool with the best features  
of a full-screen editor and word-processor.

**W-ED** is intuitive and comfortable.

The number of features packed into **W-ED's** small size is amazing!  
**W-ED** is very fast, handles files up to 750 lines and is perfect for jobs  
like letters, short reports or program source code.

You can tailor **W-ED's** features to suit your needs.

**W-ED** runs on SANYO 550 and 555 computers and costs \$40.

**WyndhamWare**

P.O. Box 729 Renton, WA 98057-0729

(In Washington State add 8.1% Sales Tax. MC & VISA—include card no., exp. date and signature)



# INPUT/OUTPUT

TIM PURVES

Soft Sector Contributing Editor

**Q.** *I have been trying to make the command piping function work, as described in the MS-DOS reference manual (section 4.8.3). The text implies that I can send the output from a program to a file, or to a greater extreme, to another program. I have tried various different syntax without success. Can you give me some guidance?*

Dalton Seymor  
Benton Harbor, MI

**A.** First of all you need MS-DOS version 2.0 or later, versions earlier than this do not support I/O redirection. The concept behind the redirection is really quite simple. The DOS can redirect the standard input device ("*stdin*" or the CON: device) and the standard output ("*stdout*" or the CON: device). The *stdin* device is the keyboard and the *stdout* device is the display. Some programs do not use the DOS *stdin* or the *stdout* devices to get or send characters; these are the programs that cannot be redirected.

On the DOS diskette there are several filter files (SORT and MORE, to name a few) that can be used with I/O redirection. For example, if you type in SORT at the DOS prompt, the SORT filter will take the input from the keyboard until a CTRL-Z is pressed, at which time the input will be sorted and then written to the screen. A more common use would be to take a file and sort it and write it to another file. For example, the following command will read and sort INPUT.FIL and write it to a file OUTPUT.FIL.

```
SORT <INPUT.FIL >OUTPUT.FIL
```

Notice the use of the '<' to designate the input file and the '>' to designate the output file. If the input file is not specified, the keyboard is used. If the output file is not specified, the display is used.

Another useful function is the '|' symbol. This is located next to the back-arrow key on the upper right-hand of the Sanyo keyboard. This symbol is used to connect (pipe) the output of the first program to the next. For example, the following command will take the directory output and sort it to the screen.

```
DIR | SORT
```

Or if you wish to save it to a file, the following example will take the directory of the B: drive and write it to a file named DIRLST.

```
DIR | SORT >DIRLST
```

Notice the use of the '|' to connect the output of the directory command and pipe it to the SORT filter and the use of the '>' to cause the output from SORT to be written to a file named DIRLST.

The MORE filter is used much the same way as the SORT filter, except its function is to pause the output every 24 lines and wait for a key press. One caution with the MORE filter is that the output should be to the screen or you will never see the prompt to press a key, and the system will appear to hang up.

I hope this sheds some light on I/O redirection. My best advice is to be bold and try some of these examples. You can't hurt a machine by typing on it!

**Q.** *Will you please comment on drives for the MBC-550/555?*

Charles Taylor  
Grand Blanc, MI  
Dalton Seymour  
Benton Harbor, MI

**A.** First of all, there have been many questions on the type of drives that I use and also many questions on how to add more than two drives. My personal preference is the TEAC drives. I have one double-sided 40 (TEAC 55B) and one double-sided 80 (TEAC 55F) and have had no problems with either.

The biggest problem that I have seen with other types of drives is the missing drive ready signal on Pin 34. Full size drives, such as Tandon and MPI, do not have this signal and the Sanyo will wait in vain for the drive to return it. Another problem is the multiplex line, more commonly labeled MUX or MX. Some documentation claims that this jumper should be installed in a multi-drive system — this simply is not the case. The multiplex line should not be connected in any case on the Sanyo MBC-550 series computers. The most typical symptom of this is that all drives will select when any drive is selected.

To add more than two drives to a Sanyo, you need an extended drive cable that has four drive connectors and one connector to connect to the mother board. Also, this cable should have all the pins in it. The external drives should be programmed as DS2 for drive C: and DS3 for D:. Add an external power supply, boot your favorite DOS, and you are up and running.



**Q.** Is there a way to label my disks without formatting them each time with DOS 2.11?

Scott Barnes  
Santa Fe, NM

**A.** The volume label on a disk is merely an empty file with the volume attribute set. There are several programs even change an existing one on a disk after it has been formatted. The utilities disk available from Sanyo had this program on it the last time I looked.

**Q.** I would like to convert all lowercase input in a BASIC program to uppercase. Is this possible in Sanyo BASIC?

Lou Ricigliand  
Rochester, NY

**A.** The simplest way to convert lowercase to uppercase is to AND the character with 95 decimal. For example, to convert the character in A\$ to uppercase, use the following short program:

```
10 IF A$ >= "a" AND A$ <= "z" THEN A$=
CHR$(ASC(A$) AND 95)
```

**Q.** IBM BASIC has a way of letting you choose to write to the screen or the printer by opening a device as a file. Can I do this under Sanyo BASIC?

Larry Schumer  
New York, NY

**A.** Yes you can. MS-DOS allows you to open any character device as a file. You could write a program that asks the operator where he/she wishes the output to go (screen, printer or file). The following program segment could accomplish this.

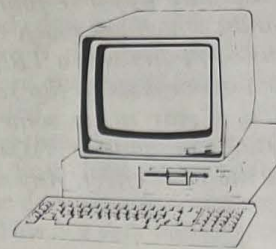
```
10 PRINT "Enter [S]creen, [P]rinter, OR [F]ile
Output"
20 A$=INKEY$:IF A$="" THEN GOTO 20 ELSE
A$=CHR$(ASC(A$) AND 95)
30 F$="NUL":' if none of the above then run
with no output
40 IF A$="S" THEN F$="CON":' CONSOLE OUTPUT
50 IF A$="P" THEN F$="PRN":' PRINTER OUTPUT
60 IF A$="F" THEN F$="FILENAME":' write to
file "filename"
70 OPEN "O",1,F$:' any prints to #1 will write
to selected device
80 '
90 FOR X=0 TO 10:PRINT #1,X:NEXT:CLOSE:
'Writes the numbers 0 -10
```

**Q.** On pages 5-38 to 5-39 of the Sanyo Operator's Guide, they discuss the Video RAM areas. I have read these pages several times and they still do not make any sense. They seem to imply that you could have several pages of text or graphics and simply toggle between them.

Bob Harris  
Oklahoma City, OK

 **SANYO**

  
**Rocky Mountain Micro**



- Expand your SANYO MBC 550 or 555 Beyond its 256K limits up to 780K with our Memory Card (includes MSDOS Config Software)  
Prices from **\$199.<sup>95</sup>**

- Real Time Clock Option for Memory Card  
**\$49.<sup>95</sup>** (includes software)

- Ram Chip Upgrade Kits (64K)  
**\$36.<sup>95</sup>**

- RS 232 Boards  
**\$49.<sup>95</sup>**

- All types of cables  
(call for price)

- Volks Modem  
**\$58.<sup>95</sup>**

Add \$5.00 for C.O.D.

Add 3% for VISA or MasterCard  
Dealer Inquiries Welcome

Shipping and Handling:

U.S. 3% - \$3.00 Minimum

Canada 5% - \$5.00 Minimum

Other - Contact us for charges

6 Month Warranty

**Rocky Mountain Micro**  
**P.O.Box 1693**  
**Sandy, Utah 84091**  
**(801) 572-6272**



**Q.** I'm trying to do some moving graphics in BASIC and so far the only way I've found is with the GET and PUT commands, which are much too slow for large areas. My previous computer was a TRS-80 Color Computer, which provided commands to flip screens in a split second, thus providing a way to do some high-speed animation. I've tried using the Sanyo's VIEW and WINDOW commands to achieve the same effect. Any suggestions?

Kenneth Van Camp  
Stroudsburg, PA

**A.** Both of the above questions deal with the Sanyo graphics, so I will attempt to clear up a little of the confusion about the video mapping of the Sanyo MBC-550. First, the Sanyo has three banks of memory dedicated to the production of images on the screen.

#### The banks:

The red screen is located at segment 0f000h.

The blue screen is located at segment 0f400h.

The green screen has the ability to move. On a general level, the green screen is located at the top of user memory, except on a machine with over 256K of memory. Then it is located at segment 800h. Refer to the following table for specifics.

Memory	Green Segment
128K	1c00h
192K	2c00h

256K	3c00h
over 256K	800h DS-DOS + 2.11 400h DS-DOS 1.25

As far as flipping between two screens, you could only flip the green screen. One of the great benefits of the TRS-80 Color Computer was its ability to page in and out two screens. Another reason the Color Computer was so fast is that it was only concerned with 6K of memory for the entire screen. The Sanyo, on the other hand, works with 48K of memory in three different segments — eight times as much. Please refer to this column in the November issue of SOFT SECTOR for the algorithm on calculating the address on the screen. Please refer to this column in the February issue of SOFT SECTOR to determine where the green screen is currently located.

**Q.** Memory, memory, memory. How can I go over 256k?

**A.** It seems that 80 percent of the questions that I get are concerning the addition of extra memory. The first thing that you need is a new DOS. The only DOS that I know of that will support the extra memory is DS-DOS Plus from MichTron. The original Sanyo DOS will not handle extra memory: it will not even boot. The methods involved in adding extra memory were devised by myself in January of 1984, shortly after the introduction of the MBC-550 in the United States. The upgrade is relatively easy, just time consuming and delicate. It consists of piggy-backing memory chips and running a few wires to the address decoder on the mother board. There are two companies in Michigan selling the parts kit, and/or plans to upgrade from 256K to 512K. These companies are Level IV Products and MichTron. Also Level IV Products will install 512K memory in your machine if you so desire. There may also be other companies selling 512K kits or plans, but I haven't had any experience with them.

(Tim Purves is an expert on the Sanyo 550/555 series computers and is an experienced programmer in assembly code, PASCAL, C and BASIC. He is available to answer any questions that the readers of SOFT SECTOR might have. All questions should be addressed to SOFT SECTOR, P.O. Box 385, Prospect, Ky. 40059)

Orders and Information  
(313) 348-4477



"Free" Sanyo Bulletin Board  
(313) 348-4479  
24 Hours 7 days a week

#### MICHIGAN SOFTWARE DISTRIBUTORS INC.

43345 GRAND RIVER  
NOVI, MICHIGAN 48050

#### MICHIGAN SOFTWARE

PFkey .....	9.95	Save Screen .....	24.95
Keyword .....	9.95	Character Generator .....	24.95
U.S. Capitals & States .....	29.95	SDT/Sanyo Direct Transfer .....	29.95
Screen Print .....	29.95	Sanyo Host and BBS .....	179.95
Print Spooler/Level IV .....	39.95	Recipe File .....	39.95

#### CUSTOM SANYO DUST COVERS

Grey Leather "Like" — Two Year Warranty	
Green Monitor and CPU/ONE Unit .....	29.95
Keyboard/Only .....	12.00
CPU/Only .....	19.95
Made to Order: any Computer/Printer .....	Call \$

#### MICHTRON: Full line of software/over 30 programs

Keyboard EXT Cable/coiled like original .....	19.95
Twist and Tilt/Monitor Stand .....	29.95
Media Mate 5 1/4" / Holds 50 Disks .....	15.95
Introduction to Wordstar Book .....	14.95
Practical Wordstar Uses Book/Free Poster .....	16.95
Mach II Joystick/most recommended .....	44.95
Perfectdata Head Cleaning Kits .....	15.95
Perfectdata Printwheel Cleaning Kit .....	19.95
Mailing Labels/one across 3 1/2" x 1" 1,000 .....	7.95
(Butt-cut: Do not peel off in printer) 3 1/2" x 2" 500 .....	7.95

#### "VISIT OUR RETAIL STORE"

• VISA, MASTERCARD, AMERICAN EXPRESS, C.O.D., CHECK •

• DEALER INQUIRES INVITED •

Prices subject to change

Add 3.00 shipping and handling

**PRICE WAR!**  
**TEAC 55B DRIVES**

**\$117**

IBM - SANYO COMPATIBLE  
QUANTITY DISCOUNT AVAILABLE  
PACIFIC DISTRIBUTORS

**(818)286 4960**



## TYPE RIGHT by Ken Olsen

Don't let the computer age slip through your fingers; learn to type the easy way. Whether you want to end the fumbling slowness of "Hunt and Peck" typing, or simply want to improve your typing speed and accuracy, TYPE RIGHT is the answer. This MACHINE LANGUAGE, educational program features a structured guide to touch-typing in a way that frees you of computer anxiety and keyboard fears. Learn at your own pace; refresh your memory with a previous drill, or forge ahead to sample paragraphs of typical typing assignments. TYPE RIGHT offers friendly menu-driven and personalized use. It keeps track of each typist's accuracy and speed (up to 250 words per minute!) and saves their personal progress to disk. Learn to type right without getting all keyed up.

**128K Sanyo 550/555 required**

**\$34.95**

## SOLARSIM by Gerald Hubbell

If your fuel bills make the winter winds seem colder, there's a bright alternative: the Sun! Solar energy is clean, dependable, and absolutely free! But it takes more than just a ray of sunshine to warm your hearth and bath; it takes a knowledge of solar heating systems, and a complete evaluation of your home's specific needs.

Announcing SOLARSIM: an educational tool that gives you this knowledge. SOLARSIM graphically simulates a solar hot-water/space heating system in action and lets you control every useful parameter. Through the use of Trend Graphs and Cost Analysis charts, you can find the most efficient solar heating system for your individual needs.

The extensive manual is written in a light, textbook format which includes a complete tutorial. SOLARSIM is perfect for students in energy related fields, for solar energy consultants, or for the frustrated home-owner who could save hundreds of dollars each year with solar energy. SOLARSIM: Letting the sunshine in!

**128K Sanyo 550/555 required**

**\$49.95**



## MUDPIES by Philip McKenzie and Jeff Sorenson

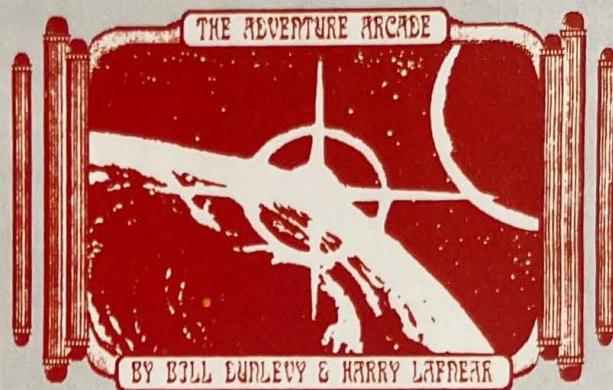
Arnold is a mischievous young boy who's sense of humor sometimes goes astray. When the circus comes to town, he can hardly wait to see it. But the circus isn't quite what Arnold expects, and soon enough he gets bored. When the clowns bring on their crazy act, Arnold decides he's had enough! He picks up a MUDPIE and throws it at the nearest clown, hitting him smack in the face. Next thing you know, the air is swarming with mudpies. But the clowns don't think it's so funny. They start throwing things back at Arnold and try to catch him. Pretty soon the place turns into a REAL circus!

Maneuver Arnold out of danger, while using mudpies to ward off angry clowns in this fun filled arcade game. Numerous challenge rounds with special prizes, 6 tents that change with increasing levels, and special mud slinging rounds make this a good addition to anyone's game collection.

**128K Sanyo 550/555 required (joystick recommended)**

**\$34.95**

## TIME BANDIT



Fast-paced action and daring adventures abound in TIME BANDIT: The arcade game that crosses the 4th dimension! Explore medieval dungeons in Fantasy World, great frontiers in West World, and bizarre lands in Space World. Visit over TWENTY exciting screens (in ANY order!) with over 15 levels in each. THAT'S OVER 300 VARIATIONS! For the ultimate variation try the Dual Player mode, where TWO can play at the same time — on their OWN playing windows! Work together, or battle it out for a bigger share of the loot! (Dual-player mode requires at least one joystick.)

The incredible graphics feature colorful scrolling landscapes and FULL animation for a host of characters. Battle the Evil Guardians: the Looking Lurker, Killer Smurphs, and more. Collect the Treasures of the Ages as you remove the locks blocking your escape. But hurry Bandit, your power is dwindling and the Techno-Bandits are hot on your trail!

This machine language epic will dazzle the fussiest graphic gawker and challenge the most skilled arcade enthusiast. Beautiful graphics, amazing sound, and literally HUNDREDS OF SCREENS—It's all here! (For the adventurous Bandits already out there, visit the Lost Maverick 2B and the world will be yours!)

## The conquest of Time and Space awaits you . . .

**128K Sanyo 550/555 required  
(joystick recommended)**

**\$39.95**

## MichTron



**576 S. TELEGRAPH PONTIAC MI. 48053**

**ORDERS AND INFORMATION (313) 334-5700**



When you finally get your piece of that pie in the sky, here's a way to see just how big it is.

# An Exploded Pie Chart

By Felipe Lebron

With Sanyo BASIC's powerful graphics, you can easily design eye-catching charts and graphs to enhance business and technical reports — or just for the fun of it. The program listing in these pages, *Piechart*, is but one example of how to use the versatile CIRCLE command to produce informative, custom-designed pie charts. All *Piechart* needs to know is the number of groups in your data (to a maximum of 10) and the size of each group. You may, if you wish, give a title to the chart and to each group.

The program will produce an "exploded pie chart" (see Figure 1), with labeled slices in alternating shades, and a table listing the share of the pie each slice represents and the total of all groups. When supplied, the chart title will be centered at the top and the name of each group printed in the table.

Naturally, *Piechart* becomes more useful when you have software to produce hard copies directly from the screen, which is something you may have considered a bit of a frill. If so, you will surely change your mind after you use *Piechart* and realize how much

---

(Felipe Lebron holds a bachelor's degree in chemistry and a master's in environmental engineering, both from Johns Hopkins University. He is a part-time, free-lance writer and an avid computer enthusiast. The author may be contacted at 2020 Mount Royal Terrace, Baltimore, MD 21217; 301-523-2768.)

---



you are missing by being unable to print the Sanyo's graphics.

The various color codes used throughout the program were designed to produce attractive displays on a monochromatic screen and on hard copies printed on a black-and-white printer. You may wish to modify the color scheme if you are using a full-color printer.

### Initial Data Entry

**P**iechart allows two data entry options: interactive (through questions posed at run time) or through DATA statements. Type in the program as listed here and type RUN and ENTER. Piechart will identify itself and present you with the two available options.

To enter the data interactively, choose Option 1 from the initial menu and depress ENTER. Piechart will identify itself again, summarize its requirements, and ask you for a chart title, reminding you that this input is optional. After learning how many groups are in your data, the program will prompt you for a size and a name for each. It's that simple.

Choose Option 2 if you have already typed in the DATA statements, which must have the following format:

```
DATA T$, IX, S(1), S$(1),  
S(2), S$(2), . . . , S(IX),  
S$(IX)
```

Where T\$ is the title for the chart, IX is the number of groups, S(1) is the size of the first group, S\$(1) is the name of the first group, etc. As with the interactive version, the chart title and group names may be omitted, though you must still enter the commas for the missing values.

The sample data in lines 910 through 940 will produce the output shown in Figure 1. The values in Line 950 will produce the same pie chart with no title or group names. If you intend to use only DATA statements to enter data, then you need not type lines 90 through 200 nor 270 through 420. However, you must change Line 260 to read: GOTO B70.

Regardless of how the data is entered, Piechart will first check that the chart title is no longer than 40 characters, nor that of any group longer than 20. In the interactive mode, the LINE INPUT statements (lines 350 and 400) will prevent you from exceeding these limits (more on this later in the article). Under

the second option, if the program finds any title longer than allowed, it will inform you with a very jarring sound and terminate execution. So be considerate to your ears and plan ahead.

### Rerunning Piechart

**O**nce the pie has been drawn and the table completed, Piechart hangs around unobtrusively and invisibly (Line 840) until a key is depressed — any key. There will be no cursors, prompts, nor any other extraneous characters on the screen, so you can direct its printing, if you have the software, and be assured that nothing but Piechart's output will show on the hard copy.

Depressing a key (other than BREAK) will cause execution of Line 850: Piechart will ask you, "More?" and, depending on your response, the program will either terminate or branch back to the beginning (Line 80), where two possibilities exist:

- 1) If you have typed the complete listing, the program will be at the initial menu. You can now supply data interactively (Option 1) or have Piechart use the next set of DATA statements (Option 2).
- 2) If you are using the shortened version of the program, Piechart will go directly to Line 870 and read the next set of data.

You can keep rerunning the program under Option 2 as long as there is data available. Each time around a new set will be used. When the DATA statements are exhausted, the program will terminate with the message: "Out Of Data In 870."

### The Program's Logic Flow

**M**any lines in Piechart contain multiple statements separated by colons. While this method of entering BASIC code effectively shortens the length of the listing, it does little for its readability. Don't be deterred. To help guide you through, the program has been divided into sections by labels contained in REMark statements which you can later remove to make the listing even shorter.

The first section, "Initialization of Variables," sets values for certain parameters to be used in drawing the

chart and printing the table. Regardless of how many times the program is rerun, it executes lines 76 and 78 only the first time around:

- 1) FORM\$ and FORM1\$ are the templates for the PRINT USING statements in lines 780 and 800. They direct printing of the share each slice represents to the nearest tenth of one percent, and of the total of all groups to six figures with a comma separating the third and fourth digit from the right. If the total of your groups exceeds 999,999, the output will be erroneous. (See SOFT SECTOR January, 1985, Page 46, for more information on the PRINT USING command.)
- 2) PI is the value for the geometrical constant: 3.14159.
- 3) P(0) is the starting point for the pie chart. The value of .25 directs the first slice to print beginning at the 6 o'clock position. (For details on this and other parameters of the CIRCLE command, refer to your *Sanyo Operator's Guide*, pages 3-101 through 3-103.)
- 4) X0, Y0 and R are, respectively, the coordinates for the center and the radius of a circle representing the original, "unexploded" pie.
- 5) A is a parameter related to the number of pixels separating the apex of each slice from the center of the original pie. This parameter is used in lines 710 and 720 to compute X and Y, values which are then added to X0 and Y0 in the CIRCLE command (Line 730). A, X and Y are also part of the relationships (Line 750) which determine where each slice will be labeled.
- 6) RAT is the ratio used by the CIRCLE command to determine the shape of the curve to be drawn. The information on Page 3-102 of the *Operator's Guide* is erroneous and should read as follows:  
  
    <ratio> = 0.508   Circle  
    <ratio> < 0.508   Ellipse (whose horizontal axis is greater than its vertical axis)  
    <ratio> > 0.508   Ellipse (whose vertical axis is greater than its horizontal axis)  
  
RAT is also used in Line 750 in calculating the position of the label within the slice.
- 7) COL is color used for drawing the



pie slices. It is also the border color in the PAINT command (Line 755). A value of five produces a brighter display on a monochromatic screen and a higher contrast for hard copies.

At Line 80, *Piechart* clears the screen and resets the variable TOTAL to zero before displaying the initial menu and asking for your choice of options.

Once the data is deemed acceptable, *Piechart* will sort the groups in descending order of size, at the "Sorting Routine." If you use DATA statements, *Piechart* will have checked the length of the chart title at Line 870 and that of each group name at Line 874.

At Line 870, the second statement — IF LEN(T\$)<41 THEN 874 — allows *Piechart* to proceed normally only if the

chart, one slice at a time, clockwise, beginning with the largest slice at the 6 o'clock position. The parameters used for the drawing are either set in lines 76 and 78, or computed in lines 670 through 720.

Lines 740 and 750 calculate where to label the slices: near the center when they comprise 20 percent or more of the pie, progressively closer to the edge as their size decreases, and outside the pie when they represent less than 1.5 percent. Before printing the labels, *Piechart* PAINTs the slices (Line 755) in alternating shades (except that slices comprising less than 1.5 percent are left unshaded) and defines the color of the label.

At Line 760, the first (and largest) slice is labeled with the character whose ASCII code is 65 (64+1), which is 'A'. The second with the symbol whose ASCII code is 66 (64+2), which is 'B', and so on.

Line 770 moves us to the left side of the screen, where the program will print the slice's label, the group's name (if one was given), and the share of the pie it represents.

When the pie is complete, *Piechart* prints the total of all the groups (Line 800), then moves to Line 840 where, as already mentioned, it waits unobtrusively in an endless loop until a key is depressed.

So there you have it. Once you become familiar with the way *Piechart* operates, you may find some modifications to suit your particular purposes. For example, you may want to print additional text at the bottom, below the table. This is easily accomplished by adding the following line:

```
835 LOCATE 23,1:PRINT
  "ADDITIONAL TEXT"
```

Or you may want to experiment with different values of 'A', the parameter which determines how far apart the slices will be from each other. The possibilities are endless once you understand the CIRCLE command and its versatility.

## 1980 U.S. BUDGET (MILLION \$)

"*Piechart* allows two data entry options: interactive (through questions posed at run time) or through DATA statements."



Should you type in anything but the numbers 1 or 2, Line 190 will reject your entry and send you to Line 200, where *Piechart* enters an endless loop which can be broken only by pressing ENTER — CHR\$(13).

Depending on the option you chose, the program will branch either to Line 870 and read the DATA statements, or immediately below (Line 300) to receive inputs from the terminal.

The section labeled "Interactive Data Input" contains different variations of the INPUT statement. Lines 350 and 400 both use LINE INPUT, a form which allows commas and quotation marks in the entry. The number in parentheses following each of these statements represents the maximum number of characters you can enter. Note that, in these two lines, commas precede the variable names, while in Line 360, a semicolon is in that position. A comma will prevent a question mark as a prompt. The semicolon immediately following the first INPUT statement in Line 400 assures that the cursor will remain in that same line after the data is entered.

chart title is less than 41 characters long. If you exceed this limit, the program will terminate at Line 873 after sending a message to the screen and sounding the buzzer, which is the function of PRINT STRING\$(5,7) in Line 872.

A similar IF LEN( ) statement at Line 874 checks the length of each group name, terminating the program if the 20-character limit is exceeded.

It's beyond the scope of this article to explain in detail how the sorting routine works. Briefly, it looks for the largest group and SWAPs (Line 500) it with the group in the first position. Then it looks for the second largest group and repeats the operation, and so on until all the groups are sorted.

*Piechart* now changes the character color (Line 555) and prints the chart title (if any) and the headings for the table. Line 560 calculates the X-position (XT) to center the chart title (T\$) drawn by the SYMBOL command with a horizontal magnification of two.

*Piechart*'s heart is the FOR/NEXT loop in lines 620 through 790, which is executed once for each group. At Line 730, the CIRCLE command draws the

### The listing: PIECHART.BAS

```
10 '          Program PIECHART
20 '          c1985 by Felipe Lebron
30 '          2020 Mount Royal Terrace
40 '          Baltimore, MD 21217
50 '
60 '
70 '
```



# A-OK Computers

## Coming Very Soon—The Ultimate Upgrade™! The A-OK Board™ "768K RAM + 7.16MHz"

The A-OK Board lets you double your processor speed and triple your RAM. The A-OK Board plugs inside your Sanyo with no soldering. The A-OK Board works fine with or without the Video Board and is fully compatible with all software which runs on your Sanyo. The A-OK Board's 8088-2 chip does all your processing, even RamDisk, twice as fast. Plug one bank of 256K chips into The A-OK Board to double your RAM to 512K or two banks for 768K of contiguous RAM. Each state-of-the-art 256K RAM chip uses only 1/4 the power and space of one 64K chip.

Call us about the shipping date and competitive price of The A-OK Board.

### LotuSan550™ "Lotus Without the Board"

LotuSan550 lets you run Lotus 1-2-3™ on your Sanyo without the hassle and expense of the Video Board.

- LotuSan550 is easy to use
  - Use Lotus as installed for IBM PC
  - Full use of Lotus' fine features
- Because you don't need the board
  - You save over \$100
  - You can run Lotus and have a hard disk
  - You'll run all your high-res. Sanyo graphics programs without rebooting
  - Your power supply will love you
- LotuSan550 is for Lotus and only Lotus
  - LotuSan550 will not help you run the pfs series, Flight Simulator, etc.
  - But, if it's Lotus you want, we believe you'll prefer LotuSan550.

LotuSan550 ..... \$55

### StarPolish™ "Makes Your WordStar® Shine!"

StarPolish upgrades WordStar to new useful capabilities.

Level 1 Enhancements—"What you see is what you get."

- Enhanced Screen Attributes
  - Using "polished" WordStar, you actually see on your screen **boldfaced** and underlined text. Super<sub>scripts</sub> are raised and smaller, sub<sub>scripts</sub> are lowered and smaller. You can also see text *italicized*. Of course, you also see on your screen combinations of these features.
  - No more ^B or ^S to complicate your work.
  - No more fouled up output because of unmatched control codes.
- Expanded Printer Support
  - StarPolish patches WordStar to provide full support for the features of popular dot matrix and ink jet printers.
  - If your printer is not on the menu, StarPolish leads you through printer installation by a series of questions. You can even install a laser printer.

Level 2 Enhancements—Improved help menus.

StarPolish supports standard WordStar control codes. In addition, StarPolish provides faster and simpler control codes and a custom HELP screen to display them.

Level 3—Technical Symbol Support and Keyboard Map.

Now you can use scientific and engineering symbols in your WordStar documents and print them out on your dot matrix printer. This level has an on-screen map of the keyboard to show you what key produces what symbol. Polished WordStar is completely compatible with unpolished WordStar, MailMerge®, and SpellStar®.

StarPolish is a trademark of TDI Systems, Inc. A-OK is the sole rep. for the Sanyo versions.

StarPolish Sanyo MBC 55x version—Levels 1, 2, and 3 ..... \$125  
Call A-OK about availability.

StarPolish Sanyo Video Board version—Levels 1, 2, and 3 ..... \$125  
StarPolish IBM Version—Levels 1, 2, and 3 ..... \$125

### TurboDrive550™ "A Quality Ram Disk for Sanyo"

TurboDrive550 turns your unused RAM into a disk drive.

TurboDrive550 is very fast.

- Speeds up all disk intensive software.
- Makes WordStar and FORMSORT run more quickly.
- Much faster than a hard disk.

TurboDrive550 is a low-cost alternative to a second disk drive.

Compare TurboDrive550's features to the competition.

- TurboDrive550 works even if you only have 128K.
- TurboDrive550 protects you from allocating more space than is available.
- TurboDrive550 gives you all the space you ask for, not what you ask for minus some amount for overhead.
- A-OK provides a COM file in MS-DOS 1.25 which lets you gracefully free TurboDrive550's space.
- TurboDrive550 lets you use its menu or parameters.

A-OK Computers • 816 Easley St., Suite 615 • Silver Spring, MD 20910 • 301-585-5105, 301-588-8446

© Copyright 1984, 1985 Apollo Optics & Kinematics, Inc.

TurboDrive550 is The Phantom Buster.

TurboDrive550 comes FREE with every new A-OK DOS 1-4™ and is available as a \$7 upgrade to current A-OK DOS owners.

TurboDrive550 for other Sanyo DOSs ..... \$33  
(The best deal is to buy A-OK DOS-1™ for \$35 and get TurboDrive550 free.)

Sanyo Video Graphics Board ..... \$179

### OIL EMPIRE™

The game of strategy and excitement where you can make JR look like Mr. Rogers.

OIL EMPIRE ..... \$ 35

### A-OK DOS-4™ "The Standard Quad-Density DOS"

We at A-OK Computers thank you for making A-OK DOS-4™ the standard DOS for quad-density drives on the Sanyo. Hundreds of copies of DOS-4™ are now in use in the most demanding applications—yours. Potential bugs have been identified and corrected, making DOS-4 a mature, well-seasoned tool. Your constant feedback has resulted in the successive refinement of our documentation. After thorough testing and comparison to would-be competitors, Scottsdale Systems selected DOS-4 as the standard DOS supplied with their Silver Fox™ (HAGEN-DOS™ is A-OK DOS-4.) Because DOS-4 is now the standard, our 730K and 800K formats are also regarded as the standard. Of the quad-density operating systems, only A-OK DOS-4 supports the very popular PrintScreen550. Soft Sector sums it up well in their September 1984 review entitled "A-OK DOS and PrintScreen550—An Unbeatable Combination".

Don't trust your work to an experimental DOS, be sure your operating system is A-OK.

Our MS-DOS 2.11 and Video Board version is now available.

Look for these features in a quad-density drive DOS:

1. The system *automatically* recognizes 8/9/10 sector, 40 and 80 track formats without reconfiguration or using alternate drive symbols (e.g. E:, F:, etc.).
2. Uses low-cost ordinary double-density diskettes.
3. Free ramdisk—TurboDrive550™.
4. FORMATS, READs, WRITEs, and DISKCOPYs *all* MS-DOS standard formats employed by the Sanyo 550 Series.
5. Uses the standard DOS-4 730K and 800K formats.
6. Built-in text screen to printer dump.
7. System boots quad drives from all of the formats it supports.
8. Supports the *only* graphics screen dump software built into the DOS—PrintScreen550.
9. Control C and Control S support.
10. Employs a legal installation procedure.

A-OK DOS-4/1.25 or A-OK DOS-4/2.11 and Video Board ..... \$55

### N-CODE™ "If You are Serious about Data Security"

- What is N-CODE?

N-CODE allows you to encode your data files so that no one else can use the information in them, thereby protecting your sensitive or valuable information.

- N-CODE is effective through a multi-layered security structure
- N-CODE is fast and easy to use.

If you won't compromise on data security, N-CODE is for you.

N-CODE for the Sanyo MBC-550 Series or IBM PC ..... \$ 79  
N-CODE Demo disk ..... \$ 10

### Keyboard Repair

Call us about low-cost repair of your sticking or non-functioning keys.

### New Shipping System

You have made our products so popular that we've been swamped with orders. In response, we recently beefed up our shipping department so that any order, large or small, will be swiftly shipped. Our goal is that every order will be shipped within 24 hours. We at A-OK thank you for supporting our products.

SEE OUR OTHER FULL-PAGE AD FOR  
ORDERING INSTRUCTIONS.  
DEALER, DISTRIBUTOR, AND OEM INQUIRES INVITED  
SOFTWARE AND HARDWARE DEVELOPERS

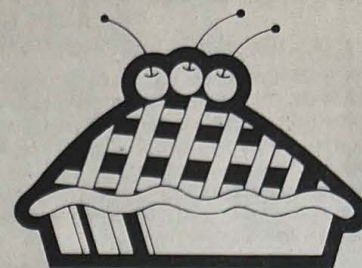
Contact us to market your creation. We value our programmers, we give royalties amounting to 30% of the gross.



```

72 '      --*Initialization of Variables*--
74 '
76 P(0)=.25:PI=3.14159:FORM$="  ##.##":FORM1$="#####,"
78 A=5:X0=450:Y0=100:R=140:RAT=.508:COL=5
80 CLS:TOTAL=0!
90 '
100 '      --*Displaying the Initial Menu*--
110 '
120 SYMBOL (192,0),"PROGRAM PIECHART",2,2
130 LOCATE 4,1
140 PRINT "Choose one of the following options:"
150 PRINT "      1. Data supplied interactively at run-time."
160 PRINT "      2. Data supplied in DATA statements."
180 PRINT:INPUT "Enter your choice: ",SEL
190 IF SEL<1 OR SEL>2 THEN PRINT:PRINT "Invalid choice.  Try again.  Press <RETU
RN> to start again."; ELSE GOTO 260
200 IF INKEY$<>CHR$(13) THEN 200 ELSE GOTO 80
260 ON SEL GOTO 300,870
270 '
280 '      --*Interactive Data Input*--
290 '
300 CLS
310 SYMBOL (192,0),"PROGRAM PIECHART",2,2
320 LOCATE 4,1
330 PRINT TAB(4);"This program will produce a pie chart with up to 10 slices.  T
ype in the num-ber of groups in the population and the size of each.  You *MAY*
title the chart(up to 40 characters) and each group (up to 20 characters).";
340 PRINT "PIECHART will computeand print the percentage each slice represents a
nd the total of all groups."
350 PRINT:LINE INPUT(40)"TITLE FOR CHART (OPTIONAL): ",T$
360 PRINT:INPUT "HOW MANY GROUPS IN YOUR DATA";IX
370 LOCATE 11,1:PRINT STRING$(80,32):LOCATE 11,1:PRINT"You will have a pie with
";IX; "slices."
380 PRINT:PRINT:PRINT "GROUP";TAB(15);"SIZE";TAB(30);"NAME (Optional)":PRINT
390 FOR I=1 TO IX
400 PRINT I;TAB(15);:INPUT;"",S(I):PRINT TAB(30);:LINE INPUT(20)"" ,S$(I)
410 TOTAL=TOTAL+S(I)
420 NEXT I
430 '
440 '      --*Sorting Routine*--
450 '
460 '
470 FOR J=1 TO IX-1:INX=J:S=S(J)

```



### SANYO GENERAL LEDGER PACKAGE \$99.95

FINALLY! A small business system for the non-accountant. Better information means more profit. Requires InfoStar.

### BUDGET FORECAST SYSTEM \$69.95

Save time and \$, control your finances. Forecast by month and year. Pay bills from monthly worksheets. 128K MS-DOS system.

### SANYO PLOT PROGRAM \$39.95

Generates and prints line, bar, pie graphs, dumps to printer. Reads keyboard input, disk files or CalcStar (R) files.

**BGW SYSTEMS (206) 845-7845**  
**16714 S. MERIDIAN - SUITE 200**  
**PUYALLUP, WASHINGTON 98373**

For information send SASE to us. For orders, please send check or money order (include \$3 S/H). Washington residents add 7.8%

### Irishman's Software, Inc.

P.O. Box 2996 • Satellite Bch., FL 32937

SANYO COMPUTER - Model 550 with 256K RAM, 2 DSDD 360K Disk Drives, Wordstar, EasyWriter 1, CalcStar, MS-DOS 2.11, Sanyo Basic (these are NEW, upgraded 550's) \$1,095  
 Above computer with 512K RAM, 2 DSDD 360K Drives (modified NEW Sanyo 550's) \$1,395

COLOR MONITOR - Panasonic DT-1300D, 13" RGB with Cable . . . . . \$395

CRT 30 - - - - - 12" Green-Screen Monitor . . . . . \$105

SANYO VIDEO BOARD . . . . . \$175

DISK DRIVES - - - TEAC 55-B, 360K, DSDD . . . . . \$149

PRINTER - - - - - Panasonic P-1091, 120 CPS, near letter quality . . . . . \$349

MEMORY UPGRADES - 64K (8-4164 150ns) . . . . . \$32  
 8087 Math Co-Processor . . . . . \$150

DISKETTES - - - - - DSDD Name Brand, not Generics . . . . . 10/\$16.50

Write for quote on your specific system configuration. Call & leave message, we will respond with written quote. (305) 777-8257. No phone orders. Send cashier check or money order. Personal/Company checks allow 3 weeks bank clearance. Add 3% UPS Postage & Handling. Min. \$4.00. Florida res. add 6% Tax.



# A-OK Computers

The Center of Creation and Dissemination of Sanyo PC Software and Hardware

## PrintScreen550™

"Fast, High-Resolution Graphics and Text from Screen to Printer with One Keystroke"

- **PrintScreen550** now includes **KeyClick™**, an optional pleasant click sound each time a keystroke is successfully entered.
- **PrintScreen550** is designed for the everyday needs of most users.
- **PrintScreen550** capabilities
  - Prints a screenful of graphics to most popular printers.
  - This prints everything on the screen whether it's graphics or text.
  - User has the option to rotate the image on the paper. This permits Okidata 92s and other printers with less than 640 horizontal dot positions to print out the full screen.
  - Turns your Sanyo into a high-resolution graphics machine.
  - Multiscreen facility permits a printed image to be 640 dots by an almost unlimited number of dots in the perpendicular direction.
- **PrintScreen550** is flexible and easy to use.
  - Interactive mode
    - Works like the "Print Screen" button on the IBM-PC.
    - One keystroke does it all. No need to embed commands in BASIC. No extra programs to execute.
    - Same single keystroke works in DOS, BASIC and all other software packages that run on the Sanyo.
  - Batch mode can be activated in BASIC by a one-line command.
- **PrintScreen550** is very fast and a lot of fun!

A-OK's **PrintScreen550** software pulls the **Print Screen** button off the IBM-PC and puts it on your Sanyo MBC-550 Series computer.

**PrintScreen550** now supports the Video Graphics Board.

**PrintScreen550** is an option to any A-OK DOS for a meager . . . . . \$24

## The A-OK™DOS Family

"Upgrade your MS-DOS 1.25 or 2.11"

All members of the A-OK DOS family add these features to your MS-DOS 1.25 or 2.11:

- **A-OK DOS** supports RAM expansion to 768K.
- **A-OK DOS** now includes *free* high-quality ramdisk software—**Turbo-Drive550** (a \$33 value).
- **A-OK DOS** automatically recognizes all formats it supports without reconfiguration or using alternate drive symbols (e.g. E:, F:, etc.).
- Prints a screenful of text to any Sanyo-compatible printer.
- Interactive mode
  - It works with one keystroke in DOS, BASIC and all other software packages that run on the Sanyo.
  - Does not interfere with program execution or affect the data.
- Batch mode
  - Can be activated in BASIC by a one-line command.
  - Interrupt-driven and can be called from programming languages.
- Supports the *only* graphics screen dump software built into DOS—**PrintScreen550**.
- Includes a special "Sorted Directory" utility.
- Has a utility to strip the high-order bit off WordStar document files.
- User-controlled scrolling in *all* subsystems, not just DOS.
- **A-OK DOS** system messages are easier to understand.
- Supports up to 4 disk drives.

**A-OK DOS** versions for MS-DOS 1.25 correct flaws in MS-DOS 1.25 without sacrificing its strengths.

- All **A-OK DOS/1.25** are much faster and use far less memory than any version of MS-DOS 2.11.
- If you try to copy a file to an unformatted disk, **A-OK DOS** does not crash the system like other 1.25 versions.
- Runs all software that comes with the Sanyo.

**A-OK DOS** versions for MS-DOS 2.11:

- Run *all* software which runs on the Sanyo under MS-DOS 2.11 and Video Board.
- PLUS special support for Sidekick™ and Flight Simulator.™
- Support installable drivers for hard disks, etc.

A-OK has tailored different versions of its DOS for varying disk drive configurations. This makes our ad more complex, but our DOS more efficient and easier for you to use.

## A-OK DOS-1™

"Not just another Double-Sided DOS"

- Any combination of up to four single and double-sided drives.
- Double-sided drives support single and double-sided diskettes.
- 8 and 9 sector formats—360K, 320K, 180K, and 160K.

A-OK DOS-1/1.25 or A-OK DOS-1/2.11 and Video Board . . . . . \$35

## A-OK DOS-2™

"Increase the Capacity of your Current Drives"

- All the features and formats of **A-OK DOS-1**
- PLUS it reads, writes, and formats 10-sector formats
  - 400K per double-sided diskette on DSDD drives
  - 200K per single-sided diskette on SSDD and DSDD drives
  - uses ordinary diskettes
  - pays for itself in saved diskettes.

A-OK DOS-2/1.25 or A-OK DOS-2/2.11 and Video Board . . . . . \$45

## 800K PER DISK DRIVE

## A-OK DOS-3™

"A-OK DOS for Double and Quad-Density Drive Systems"

- All the features of **A-OK DOS-2**
- PLUS up to 4 double-density and quad-density drives
  - on double-density drives:
    - reads and writes all formats read by 1.25 and 2.11
    - reads, writes, and formats 200K SSDD diskettes
    - reads, writes and formats 400K DSDD diskettes
  - on quad-density drives:
    - reads, writes, and formats 730K and 800K on ordinary diskettes.

A-OK DOS-3/1.25 or A-OK DOS-3/2.11 and Video Board . . . . . \$55

## A-OK DOS-4™

- All the features of **A-OK DOS-2**
- PLUS up to 4 quad drives—3.2 Megabytes of *removable* medium!
  - quad drives read all diskettes written by MS-DOS 1.25 and 2.11
  - quad drives read, write and format 160K, 180K, 200K, 320K, 360K, 400K, 730K, 800K formats on ordinary diskettes.
  - will not run Prolok™ disks.

A-OK DOS-4/1.25 or A-OK DOS-4/2.11 and Video Board . . . . . \$55

## UPGRADE TO 400K PER DRIVE

Increase your disk capacity to 400K per drive using A-OK's DSDD Kit™ which includes:

- 2 first-quality new TEAC 55B double-sided double-density (DSDD) disk drives which replace the TEAC 54A's in your SANYO.
- **A-OK DOS-2/1.25 or A-OK DOS-2/2.11.**
- Complete, easy instructions.
- All parts needed.
- 1 year warranty.

DSDD Kit . . . . . \$369

## DSQD Kit™

Upgrade to 800K per drive—same as DSDD Kit but with 2 800K TEAC 55F drives and **A-OK DOS-4/1.25 or A-OK DOS-4/2.11.**

DSQD Kit . . . . . \$399

## Ada for SANYO?

You bet! Now you can use the language of the future on your Sanyo or nearly any other micro. Janus/Ada is great for learning Ada and for serious applications development. Available are: Pascal to Ada translator, Ada optimizer, source code for run time libraries, 8088 (8086) to 8080 cross compiler, site licenses, and the source code for the compiler (itself written in Ada). The compiler package for MBC Series costs only \$99.

## "AMBIZ-PAK"™

Fifteen programs for Amway Product Distributors . . . . . \$100

## XCord550™

"Extension Cord for your Sanyo PC Keyboard"

XCord550 6 foot . . . . . \$15

XCord550 12 foot . . . . . \$25

RS232C Serial Boards . . . . . \$72

128K Memory Upgrade Kit 150ns chips. . . . . \$69

## UPDATE POLICY

We at A-OK are constantly improving our products. If you are a registered owner of software developed by us, we will send you the enhanced version of that product for a \$7 shipping and handling fee.

## Orders may be placed immediately.

Please send money order or cashiers check. Personal or company checks require 2-3 weeks to clear. Prices reflect a 3% cash discount. MasterCard/VISA/CHOICE accepted. MD residents add 5% sales tax. Out-of-state order, no tax. Prices subject to change. All brands are registered trademarks. 20% restocking fee for all returned merchandise.

A-OK Computers 816 Easley St., Suite 615 • Silver Spring, MD 20910 301-585-5105, 301-588-8446

© Copyright 1984, 1985 Apollo Optics & Kinematics, Inc.



```

480 FOR I=J+1 TO IX:IF S(I)>S THEN INX=I:S=S(I)
490 NEXT I
500 SWAP S$(J),S$(INX):SWAP S(J),S(INX)
510 NEXT J
520 CLS
530 '
540 '      ==*Printing of Headings*==
550 '
555 COLOR 6,0
560 XT=320-8*LEN(T$):SYMBOL(XT,0),T$,2,1
570 LOCATE 6,11,0:PRINT "GROUP";TAB(28);"SHARE"
580 PRINT TAB(4);STRING$(20,95);TAB(27);"_____"
590 '
600 '      ==*Drawing of Pie and Printing of Table*==
610 '
620 FOR I=1 TO IX
670 SH(I)=S(I)/TOTAL
680 P(I)=P(I-1)+SH(I):M(I)=(P(I)+P(I-1))/2
690 IF P(I)>1 THEN P(I)=P(I)-1
700 PHI=2*PI*M(I)
710 X=A*COS(PHI)
720 Y=A*SIN(PHI)
730 CIRCLE (X0+X,Y0+Y),R,-P(I-1),-P(I),RAT,COL
740 F=.5:IF SH(I)<.2 THEN F=F+(.2-SH(I))*1.9:IF SH(I)<.015 THEN F=1!
750 X1=X0+X+F*R*X/A:Y1=Y0+Y+F*RAT*R*Y/A+3*SGN(Y)
755 CO=0:IF F<1 THEN PAINT (X1,Y1),1+4*(I MOD 2),COL ELSE CO=6
760 SYMBOL(X1,Y1),CHR$(64+I),1,1,CO
770 LOCATE 8+I,1,0:PRINT CHR$(64+I);". ";S$(I);TAB(26);
780 PRINT USING FORM$; 100*SH(I)
790 NEXT
800 LOCATE 9+I,13,0:PRINT "TOTAL";TAB(27);:PRINT USING FORM1$; TOTAL
810 '
820 '      ==*Hanging around Unobstrusively*==
830 '
840 IF INKEY$="" THEN 840 ELSE LOCATE 23,1,1
845 COLOR 2,0
850 INPUT;"MORE";I$:IF I$="Y" OR I$="y" THEN 80
860 LOCATE 23,1:END
862 '
864 '      ==*Reading of DATA Statements*==
866 '
870 READ T$,IX:IF LEN(T$)<41 THEN 874
872 CLS:PRINT "TITLE FOR CHART:":PRINT T$:PRINT "IS TOO LONG.";STRING$(5,7)
873 END
874 FOR I=1 TO IX:READ S(I),S$(I):IF LEN(S$(I))<21 THEN 886
875 CLS:PRINT"NAME FOR GROUP ";I;" IS TOO LONG! A MAXIMUM OF 20 CHARACTERS IS AL
LOWED."
880 PRINT STRING$(5,7):PRINT "THE NAME: ";S$(I):PRINT "HAS ";LEN(S$(I));
885 PRINT "CHARACTERS. MODIFY YOUR DATA.":END
886 TOTAL=TOTAL+S(I):NEXT I
887 GOTO 470
889 '
890 '      ==*DATA Statements*==
900 '
910 DATA 1980 U.S. BUDGET (MILLION $)- SOURCES,7
920 DATA 227300,Ind. Income Taxes,71000,Corp. Income Taxes,161500,FICA
930 DATA 18500,Excise Taxes,6000,Estate & Gift Taxes,8400,Customs Duties
940 DATA 9900,Miscellaneous
950 DATA ,7,227300,,71000,,161500,,18500,,6000,,8400,,9900,,

```





**THE NEWEST**

## **SANYO 550/555 SUPERCHARGER**

# **MEMORY EXPANSION BOARD**

**From TW TECH**

**It's Available NOW!!**

**PROVIDES UP TO 512K ADDITIONAL RAM MEMORY FOR USE OF LOTUS\*  
AND OTHER POWERFUL PROGRAMS**

- Self-contained for easy, quick installation.
- Complete with 256K/power supply/cables/software.
- No lengthy loss of computer use for installation as with some memory expansion configurations.
- Does not void SANYO\* warranty.
- Compatible with SANYO video board and TW Tech DATAFILE\*.
- Uses state-of-the-art 256K memory chips.
- Debugged/reliable/economical.

AND DON'T FORGET THOSE OTHER **SANYO SUPERCHARGERS**,  
the 10, 20, and 40 Megabyte DATAFILE hard disk subsystems to economically expand  
your 550 series SANYO — Available from \$1295.

Dealer inquiries urged.



**TECHNOLOGIES, INC.™**

21636 North 14th Avenue, Suite A2, Phoenix, AZ 85027, (602) 581-0669

SANYO is a trademark of Sanyo Corporation. LOTUS is a trademark of Lotus Development Corporation. DATAFILE is a trademark of TW Technologies, Incorporated.



*Check your guns at the door  
and pull up a chair.  
The name of the game,  
gentlemen, is ....*

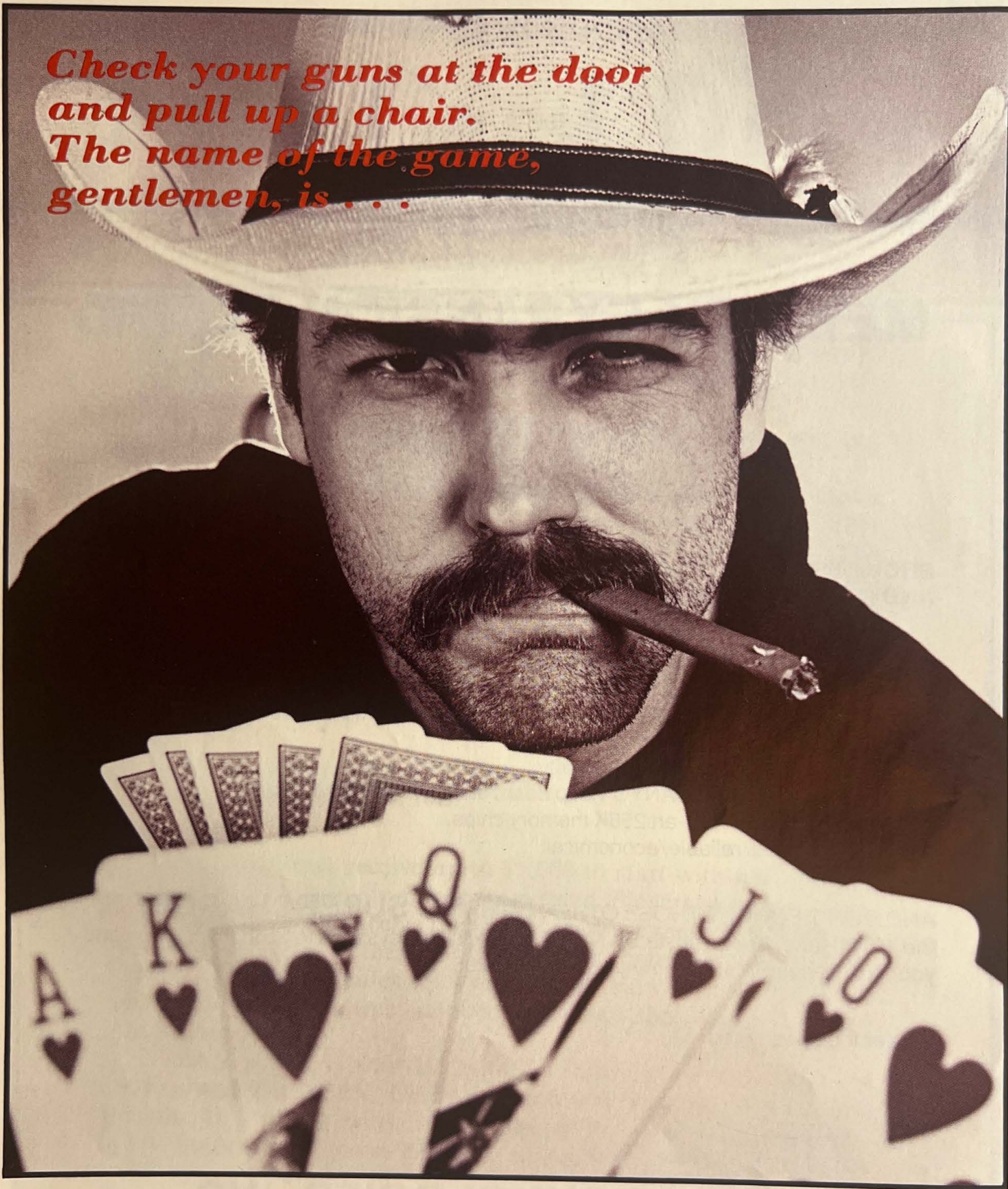


PHOTO BY NEAL C. LAURON



*(Rodney Viessman, a 16-year-old high school student, has done programming and technical work for the Lemberger Company for the past three years. He has worked with Radio Shack, Sanyo and IBM computers and, of course, loves computer games. He may be contacted at Rt. 2, Box 45, Vienna, MO 65582; 314-422-3385.)*



# Five Card Draw

By Rodney Viessman

**H**ave you been waiting for a great computer game that will give you many hours of fun and not cost \$40 to \$50? Well, it's here!

Poker is a game that everyone loves to play. Now you can play it without having to risk losing a lot of money.

*Five Card Draw Poker* runs within 128K of memory and allows one to six players. Players do not compete against each other or against the computer, but instead, they play individually. The program uses the Sanyo's graphics capabilities very well. The screen shows: a payoff chart; each players name, plays left, and net winnings; five cards and prompts to the players as to what they want to do. The game does not show you how to play poker, but it is easy to understand if you already know how. It is guaranteed to keep your interest and give you many hours of fun.

Type in the program as shown in the listing. Be sure to SAVE it, and then RUN it. Have fun!

## **The Game:**

Each player can receive up to \$1,000 to start with and is given a chance to increase his money from there. Players alternate turns, enter their bets and receive five cards. They are then given a chance to drop any or all of these cards by pressing numbers one through five. If a player decides he wants a card back that he dropped, he may press the same number again and the card will return to his hand.

Once a player is satisfied with the cards left in his hand, he then presses RETURN. Cards dropped will be replaced with new cards. If a player wins, the computer will show the winnings. The player then presses RETURN to accept his winnings or types 'D' to try to double his winnings. If he types a 'D', he will be asked "odd or even." The player must then type an 'O' or an 'E'. If the player guesses the card to be odd or even correctly, his winnings are doubled, otherwise all winnings are lost. After a player finishes his turn, play goes to the next player. Play continues until everyone has lost his money or decides to quit.





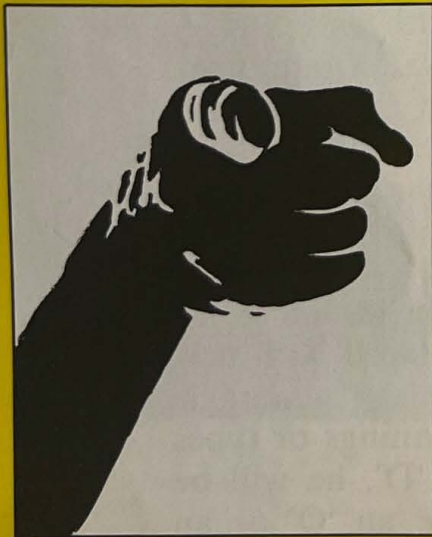
## The listing: POKER.BAS

```

1 ' *****
2 ' *
3 ' *
4 ' *
5 ' *
6 ' *
7 ' *
8 ' *
9 ' *
10 ' *
11 ' *****
20 DEFINT A-M,R-Z
30 COLOR 3,0
40 GOSUB 2730
50 GOSUB 2530:CLS:GOSUB 430
60 FOR Y=1 TO N
70 GOSUB 2240
80 IF PL(Y)=0 THEN NEXT Y:TS=TS+1:IF TS=2 THEN GOTO 2070 ELSE GOTO 60
90 TS=0
100 GOSUB 2150
110 FOR A=1 TO 5
120 D(A)=0:RV(A)=0
130 GOSUB 720:GOSUB 750:GOSUB 2390:GOSUB 2360
140 NEXT A
150 GOSUB 260
160 GOSUB 2670:GOSUB 990

```

# SUBMITTING MATERIAL



Contributions to **SOFT SECTOR** are welcome from everyone. We like to run a variety of programs which will be useful/helpful/fun for other Sanyo owners.

• **FORMAT:** Unless the program accompanying your submission is less than 10 lines, we must have the program itself on disk. We will print out the listing to our specifications. We simply cannot take the time to key in (and debug our typing errors) material which is longer than that. Editorial copy can also be included on disk, using any of the word processors currently available for the Sanyo 550, 555 or 775. However, please also include a double-spaced hard copy of your editorial material and hard copy of your program listing. Please do not send text in all capitals. Use upper- and lowercase. While it is a big help to us in typesetting for you to send your article saved on disk using the ASCII option, it is not mandatory. But we must have, at the very least, a double-spaced hard copy of the article.

• **WHAT TO WRITE:** Anything with a practical application. If it interests you, it will probably interest a lot of others. However, we vastly prefer articles with accompanying programs which can be entered and run. The more unique the idea, the more appeal. We can prepare finished tables, diagrams and schematics from your rough draft *if* you provide legible copy and full directions. We have a continuing need for short articles with short listings.

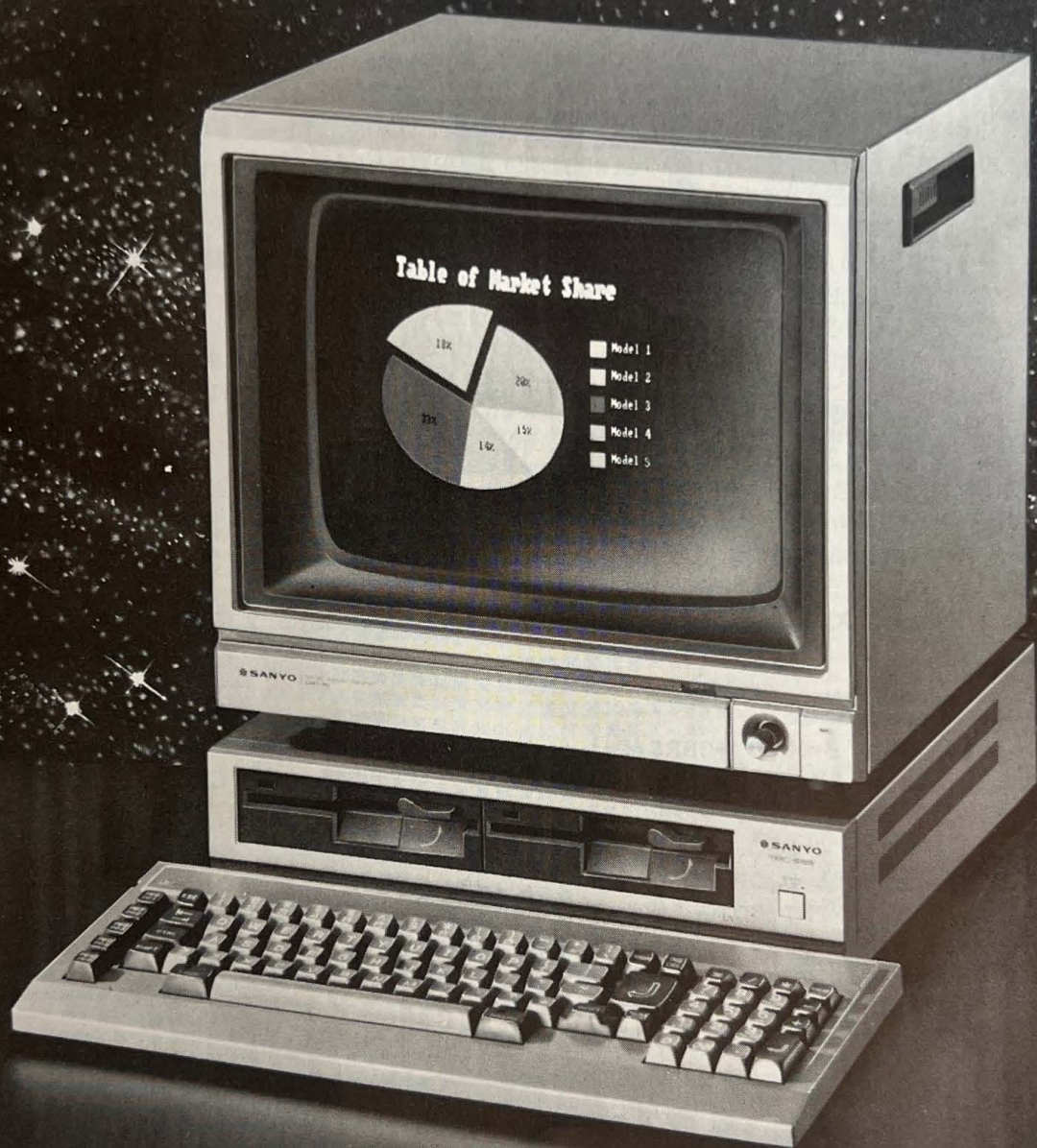
We do pay for submissions, based on a number of criteria. Those wishing remuneration should *so state* when making submissions.

For the benefit of those who wish more detailed information on making submissions, please send an SASE to: Submissions Editor, **SOFT SECTOR**, P.O. Box 385, Prospect, KY 40059. We will send you some more comprehensive guidelines.

Please do not submit programs or articles currently submitted to another publication.



# NOW. SANYO POWER.



## The MBC 550 Series

Monitor Optional

The MBC 550 Series are high performance, MS-DOS, 16 bit personal computers with color graphics and up to 256K RAM expandability. Available with either 160K or 360K drive(s).

All models come with MS-DOS, Basic, WordStar®, CalcStar®, EasyWriter I™. Dual drive models come with additional IUS or MicroPro® bundled software. And, the powerful operating system allows you to run many of the IBM PC business software programs. All for a price that can't be beat.

If your needs are for word processing, accounting, spreadsheets, data base management, advanced integrated programs, or home and educational applications, experience the power of the Sanyo MBC 550 series now.



# SANYO

COMPUTER DIVISION

## SANYO BUSINESS SYSTEMS CORP.

51 Joseph Street, Moonachie, NJ 07074

**YOU'LL FIND OUR NAME EVERYWHERE.**



```

170 PL(Y)=PL(Y)-M
180 LOCATE (Y*4-1),67:PRINT "PLYS=";:PRINT USING "###,###";PL(Y);:PRINT CHR$(179)
:LOCATE (Y*4),67:PRINT USING "NET=-###,###";PL(Y)-Q(Y);:PRINT CHR$(179)
190 IF PL(Y)=0 THEN CLS:PRINT N$(Y);" YOU ARE OUT OF MONEY, WOULD YOU LIKE TO TR
Y AGAIN ? Y/N ? ";:I$=INPUT$(1):PRINT I$ ELSE GOTO 210
200 IF I$="Y" OR I$="y" THEN PRINT:PRINT"ENTER NUMBER OF DOLLARS";:INPUT NQ:IF N
Q>1000 THEN PRINT:PRINT"LIMIT IS 1000. TRY AGAIN":GOTO 200 ELSE Q(Y)=Q(Y)+NQ:PL
(Y)=NQ:GOTO 230 ELSE IF I$="N" OR I$="n" THEN GOTO 220 ELSE GOTO 190
210 NEXT Y:GOTO 60
220 GOTO 240
230 PRINT:PRINT"YOU HAVE NOW BORROWED";Q(Y);"DOLLARS SO FAR.":PRINT:PRINT"PRESS
(RETURN) TO CONTINUE.":I$=INPUT$(1)
240 CLS:GOSUB 430:NEXT Y
250 GOTO 60
260 REM ***** DROP CARDS *****
270 LOCATE 14,1:PRINT"PRESS NUMBER OF CARD TO DROP, (1-5), OR (RETURN) TO CONTIN
UE ";:PRINT STRING$(4,8);:A$=INPUT$(1):PRINT A$;
280 IF ASC(A$)=13 THEN GOTO 380
290 J=VAL(A$):IF J<1 OR J>5 THEN GOTO 270
300 IF D(J)=1 THEN D(J)=0:A=J:S=ASC(RIGHT$(C$(J),1)):GOSUB 720:GOSUB 2390:R=ASC(
C$(J)):GOSUB 810:GOSUB 2360:GOTO 370
310 LINE((J-1)*104,136)-((J-1)*104+100,199),2,B
320 IF RV(J)=0 THEN PAINT((J-1)*104+1,137),4,2:GOTO 330 ELSE GOTO 340
330 LINE((J-1)*104,136)-((J-1)*104+100,199),4,B:RV(J)=1:GOTO 360
340 PAINT((J-1)*104+1,137),0,2:RV(J)=0
350 LINE((J-1)*104,136)-((J-1)*104+100,199),0,B
360 D(J)=1
370 GOTO 270
380 REM ***** REPLACE CARDS *****
390 FOR A=1 TO 5
400 IF D(A)=1 THEN GOSUB 720:GOSUB 750:GOSUB 2390:GOSUB 2360
410 NEXT A
420 RETURN
430 REM ***** DRAW SCREEN *****
440 SYMBOL(25,120),"1=DROP"+CHR$(25),1,2,3
450 SYMBOL(129,120),"2=DROP"+CHR$(25),1,2,3
460 SYMBOL(233,120),"3=DROP"+CHR$(25),1,2,3
470 SYMBOL(337,120),"4=DROP"+CHR$(25),1,2,3
480 SYMBOL(441,120),"5=DROP"+CHR$(25),1,2,3
490 IF T$="B" THEN PRINT:GOTO 590
500 FOR B=1 TO 25:LOCATE B,66:PRINT CHR$(179);:NEXT B
510 LOCATE 1,66:PRINT CHR$(218)+STRING$(12,196)+CHR$(191);
520 FOR V=1 TO 6
530 LOCATE (V*4-2),67:PRINT N$(V):LOCATE (V*4-2),79:PRINT CHR$(179)
540 IF N$(V)="" THEN GOTO 550 ELSE LOCATE (V*4-1),67:PRINT "PLYS=";:PRINT USING "
###,###";PL(V);:PRINT CHR$(179):LOCATE (V*4),67:PRINT "NET=";:PRINT USING "-###,
###";PL(V)-Q(V);:PRINT CHR$(179)
550 LOCATE (V*4-1),79:PRINT CHR$(179):LOCATE (V*4),79:PRINT CHR$(179)
560 IF V=6 THEN LOCATE (V*4+1),66:PRINT CHR$(192)+STRING$(12,196)+CHR$(217);:GOT
O 580
570 LOCATE (V*4+1),66:PRINT CHR$(195)+STRING$(12,196)+CHR$(180)
580 NEXT V
590 REM * PAY OFF CHART *
600 LOCATE TT,5:PRINT "
"
610 LOCATE TT+1,5:PRINT "
"
620 LOCATE TT+2,5:PRINT "
"

```

PAYOFF CHART

1. ROYAL FLUSH

1000 TIMES BET







# SANYO SYSTEMS

## SPECTACULAR SAVINGS



**SANYO MBC 550-2**  
with single DS/DD 360K Drives  
**YOUR CHOICE:**  
Sanyo DM2112N - 12" Green or Amber Monitor  
**FREE SOFTWARE:**  
Wordstar • Calcstar • Easywriter I • Sanyo Basic  
• MS-DOS (2.11)

**Star Micronics SG-10**  
and Printer Cable **\$1099** Includes Near Letter Quality

Pkg. No. 1

**Star Micronics Power Type**  
and Printer Cable **\$1199** Letter Quality

Pkg. No. 2

Let Us  
Customize  
A Sanyo  
Computer  
System to  
Fit Your  
Needs!

**BONUS:**  
**FREE 128K**  
Additional with  
any package.

(Gives You A Total  
of 256K)

**SANYO MBC 555-2**  
With Two DS/DD 360K Drives  
**Your Choice:**  
Sanyo DM 2112N - 12"  
Green or Amber Monitor  
**FREE SOFTWARE:**  
Wordstar • Calcstar • Easywriter I  
Mailmerge • Spellstar • Infostar  
Sanyo Basic • MS-DOS (2.11)

**Star Micronics SG-10**  
(Includes Near Letter-Quality) **\$1459** Pkg. No. 3

**Star Micronics Powertype**  
and Printer Cable **\$1549** Letter Quality Pkg. No. 4

### COMPUTERS

550-2 w/software	699
555-2 w/software	1079
775 Portable Color	1899
360K DS/DD Drive w/software	359
360K DS/DD Drive	149
RS 232C	65
128K Memory	69
Video Expansion Board	159

### MONITORS with cable included

Sanyo 9" Green	\$ 69
Sanyo 12" Green	84
Sanyo 12" Amber	89
Sanyo CRT 30 Green	109
Sanyo CRT 70 Color	599
Sanyo CRT 50 Color	319

### STAR-MICRONICS PRINTERS

SG-10 (80 column)		
SG-15 (136 column)	CALL	
SD-10 (80 column)	FOR	
SR-10 (80 column)	PRICES	
Powertype Daisywheel		
Epson RX-80+	\$ 239	
Epson RX-80FT+	319	
Epson FX-80+	419	
Epson FX-100+	749	
Epson RX-100+	419	
Okidata 92P	449	
Sanyo PR 5000 (13")	379	
Sanyo PR 5500 (17")	599	
Printer Cable	19	
Okimate 20 Color Printer		
Cable included	219	

### MODEMS - Cable Included

Volsmodem (300 BAUD)	69.95
Signalman Mark X (300 BAUD)	129.95
Signalman Mark XII (300/1200 BAUD)	259.95

### SOFTWARE

<b>INFOCOM</b>	
Zork I	\$28
Zork II	32
Zork III	32
Deadline	37
Starcross	37
Suspended	37
Witness	28
Planetfall	28
Enchanter	28
Infidel	32
Sorcerer	32
Invisclues	7
<b>MICHTRON</b>	
Mi-Term	68
Picasso	88
Freeze Frame	33
<b>OTHERS</b>	
D-Base II	375
OES Accounts Receivable	79
OES Accounts Payable	79

**SANYO AUTHORIZED  
SERVICE CENTER**  
Call for prices and services!

### GENERIC DISKS AT FANTASTIC PRICES!

**GENERIC DISKS AS LOW AS 94¢ ea.**  
Generic 100% Defect-Free/Guaranteed.  
Includes sleeves, labels, write protect tabs, reinforced  
hub rings, lifetime warranty. (2 boxes minimum)

	DS/DD
DISKETTES	2 boxes 15.99
(2 bx. minimum)	3-9 boxes 14.50
10 per box	10+ bxs. 13.99

★ ★ DEALER INQUIRIES INVITED ★ ★

### MANUALS

G-W Basic Reference	\$39
MS-DOS 2-11 Reference	45
<b>DISKETTE/CARTRIDGE/CASSETTE FILES</b>	
Flip 'N' File	3.95
Flip 'N' File 15	6.95
Flip 'N' File/The Original	16.95
Disk Bank	3.99
Colored Library Case	2.99
Disk Bank/5 (holds 50)	12.99
Power Strip (6 outlet)	16.95
Lineguard Spike Suppressor	13.99
Disk Drive Cleaning Kit	11.99
Joystick	24.95

To order call **TOLL FREE**  
**1-800-824-7506**  
ORDER LINE ONLY

### COMPUTER CREATIONS, Inc.

P.O. BOX 292467 - DAYTON, OHIO 45429  
For information call: (513) 294-2002 (Or to order in Ohio)



No extra charge  
for MasterCard  
or Visa

Order Lines Open 8:30 a.m. to 8:00 p.m. Mon.-Fri.; 10:00 a.m. to 4:00 p.m. Sat. (Eastern Standard Time). Minimum \$10 order. Orders under \$100 add \$3.00. C.O.D. (add \$2.50). All prices are subject to change without notice. Call toll free number to verify prices and availability of product. Actual freight will be charged on all hardware. Software and accessories add \$4.00 shipping and handling in Continental United States. Actual freight will be charged outside U.S. to include Canada, Alaska, Hawaii, Puerto Rico. Ohio residents add 6% sales tax. NO CREDITS! Return must have authorization number.



```
630 LOCATE TT+3,5:PRINT "          2. STRAIGHT FLUSH          100 TIMES BET"
"
640 LOCATE TT+4,5:PRINT "          3. FOUR OF A KIND          60 TIMES BET"
"
650 LOCATE TT+5,13:PRINT "4. FULL HOUSE          30 TIMES BET"
660 LOCATE TT+6,13:PRINT "5. FLUSH          20 TIMES BET"
670 LOCATE TT+7,13:PRINT "6. STRAIGHT          15 TIMES BET"
680 LOCATE TT+8,12:PRINT " 7. THREE OF A KIND          7 TIMES BET"
690 LOCATE TT+9,13:PRINT "8. TWO PAIR          5 TIMES BET"
700 LOCATE TT+10,13:PRINT "9. PAIR (QUEENS OR BETTER)  2 TIMES BET"
710 RETURN
720 REM ***** DRAW BOX *****
730 LINE((A-1)*104,136)-((A-1)*104+100,199),3,B
740 RETURN
750 REM ***** PICK CARD *****
760 S=INT(RND(1)*4+.5)
770 IF S<1 THEN GOTO 760
780 R=INT(RND(1)*13+.5)
790 IF R<1 THEN GOTO 780
800 GOSUB 810:GOTO 7940
810 IF R=1 THEN A$="2"
820 IF R=2 THEN A$="3"
830 IF R=3 THEN A$="4"
840 IF R=4 THEN A$="5"
850 IF R=5 THEN A$="6"
860 IF R=6 THEN A$="7"
870 IF R=7 THEN A$="8"
880 IF R=8 THEN A$="9"
890 IF R=9 THEN A$="10"
900 IF R=10 THEN A$="J"
910 IF R=11 THEN A$="Q"
920 IF R=12 THEN A$="K"
930 IF R=13 THEN A$="A"
940 C$(A)=CHR$(R)+CHR$(S)
950 FOR I=1 TO 5
960 IF C$(I)=C$(A) AND A<>I THEN GOTO 750
970 NEXT I
980 RETURN
990 REM **** CHECK FOR A WIN *****
1000 LOCATE 14,1:PRINT STRING$(64,32);
1010 REM **** CHECK FOR ROYAL FLUSH
1020 IF RIGHT$(C$(1),1)=RIGHT$(C$(2),1) AND RIGHT$(C$(2),1)=RIGHT$(C$(3),1) AND
RIGHT$(C$(3),1)=RIGHT$(C$(4),1) AND RIGHT$(C$(4),1)=RIGHT$(C$(5),1) THEN GOTO 10
30 ELSE GOTO 1360:REM CHECK FOR FOUR OF KIND
1030 IF ASC(LEFT$(C$(5),1))=13 THEN GOTO 1050
1040 GOTO 1170
1050 IF ASC(LEFT$(C$(4),1))=12 THEN GOTO 1070
1060 GOTO 1170
1070 IF ASC(LEFT$(C$(3),1))=11 THEN GOTO 1090
1080 GOTO 1170
1090 IF ASC(LEFT$(C$(2),1))=10 THEN GOTO 1110
1100 GOTO 1170
1110 IF ASC(LEFT$(C$(1),1))=9 THEN GOTO 1130
1120 GOTO 1170
1130 GOSUB 2300:SYMBOL(110,0),"** ROYAL FLUSH **",2,2,3
1140 SYMBOL(35,20),"THAT'S WORTH"+STR$(M*1000)+" DOLLARS !!",2,2,3
1150 PQ=M*1000:GOSUB 1840
1160 GOTO 1830
```



```

1170 REM ***** CHECK FOR STRAIGHT FLUSH
1180 IF ASC(C$(1))=1 THEN GOTO 1240
1190 FOR I=1 TO 4
1200 IF ASC(C$(I))+1=ASC(C$(I+1)) THEN GOTO 1220
1210 GOTO 1320:REM WIN FOR FLUSH
1220 NEXT I
1230 GOTO 1290
1240 FOR I=1 TO 3
1250 IF ASC(C$(I))+1=ASC(C$(I+1)) THEN GOTO 1270
1260 GOTO 1320:REM WIN FOR FLUSH
1270 NEXT I
1280 IF ASC(C$(5))<>13 AND ASC(C$(1))<>1 THEN GOTO 1320:REM WIN FOR FLUSH
1290 GOSUB 2300:SYMBOL(90,0),"** STRAIGHT FLUSH **",2,2,3
1300 SYMBOL(35,20),"THAT'S WORTH"+STR$(M*100)+" DOLLARS !!",2,2,3
1310 PQ=M*100:GOSUB 1840:GOTO 1830
1320 REM ***** WIN FOR FLUSH
1330 GOSUB 2300:SYMBOL(165,0),"** FLUSH **",2,2,3
1340 SYMBOL(35,20),"THAT'S WORTH"+STR$(M*20)+" DOLLARS !!",2,2,3
1350 PQ=M*20:GOSUB 1840:GOTO 1830
1360 REM ***** CHECK FOR FOUR OF A KIND
1370 IF ASC(C$(1))=ASC(C$(2)) AND ASC(C$(2))=ASC(C$(3)) AND ASC(C$(3))=ASC(C$(4))
) OR ASC(C$(2))=ASC(C$(3)) AND ASC(C$(3))=ASC(C$(4)) AND ASC(C$(4))=ASC(C$(5)) T
HEN GOTO 1390:REM WIN FOR 4 OR KIND
1380 GOTO 1420:REM CHECK FOR FULL HOUSE
1390 GOSUB 2300:SYMBOL(90,0),"** FOUR OF A KIND **",2,2,3
1400 SYMBOL(35,20),"THAT'S WORTH"+STR$(M*60)+" DOLLARS !!",2,2,3
1410 PQ=M*60:GOSUB 1840:GOTO 1830
1420 REM ***** CHECK FOR FULL HOUSE

```

## FLOPPY STORAGE UP TO 3.2 MEG!!!

### External Drive Kits

**\$115. (\$85. with Drive Order)**  
Includes all Cables & Instructions.  
Holds up to 2 Drives.

#### DISK DRIVES

TEAC SS, DD (200K) \$105.

TEAC DS, DD (400K) \$139.

TEAC DS, QD (800K) \$135. SALE

Second Drive \$10 Less

1 YEAR WARRANTY ON ALL DISK DRIVES

**MT BASIC \$49.95**

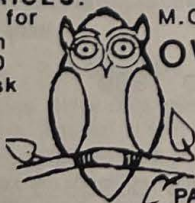
A Windowing Basic with BASIC  
COMPILER which yields Fast  
Machine Code for the SANYO.

TOLL FREE ORDER LINE 800 245-6228

& LATEST PRICES:

NOTE: Add \$30. for M.C. & VISA Accepted

AOK DOS which  
gives 8,9 or 10  
sectors per disk  
and up to  
0.8 meg  
per drive!!!



**Owl-Services**

P.O. Box 116-D

Mertztown, PA.

19539

PA Res. Include 6% Tax

PA (215) 682-6855

800 245-6228

## FREE SANYO PRICE LIST CATALOG

Call or write for all the information you need to save money on hardware, software, and accessories for your Sanyo. Educational, Business, and Game Software that is guaranteed to run on the MBC Series.

(PLEASE SPECIFY WHICH MODEL YOU OWN)

RS-232 SERIAL BOARD ..... \$ 74.95

This product is 100% compatible and includes RF shielding for superior reliability and immunity to noise, and is unconditionally guaranteed for 90 days after purchase.

COPYLINK by U.S. Digital ..... \$ 79.95

CopyLink is an extremely flexible communications package that includes thorough documentation to allow easy access to any information service. This product is available for the Sanyo MBC-1000, 1100, 1200 and 550 Series computers, as well as other MS-DOS and CP/M computers. (Includes Free Dow Jones Sub.)

COMPLETE COMMUNICATIONS PACKAGE #1 ..... \$429.50

This will include an RS-232 board, 1200/300 baud Anchor Mk XII modem, and CopyLink.

COMPLETE COMMUNICATIONS PACKAGE #2 ..... \$229.50

This will include an RS-232 board, 300 baud J-Cat or Volks modem, and CopyLink.

CPeMULATOR by U.S. Digital ..... \$ 79.95

This program will allow the Sanyo 550 Series computer to run the huge number of programs written for the CP/M computer market.

RAMDISK - (M-DISK) by Michtron ..... \$ 29.95

This is a very easy-to-operate program that will transform your computer memory into an electronic disk.

#### 2ND DISK DRIVE UPGRADE

11 MB HARD DRIVE w/Software by Greywolf ..... \$1249.50

128K RAM KIT Upgrade ..... \$ 99.95

DUAL-SIDED, DUAL-DENSITY — complete with New 2.11 DOS ..... \$399.00

Your choice of EasyPac\* or StarPac\*.

\*NOTE: EasyPac from IUS contains EasyMail II, EasyWriter II, Easy Planner, Easy Filer.

StarPac from Micropro contains Infostar, Mailmerge, Spellstar.

TEAC DUAL-SIDED, DUAL-DENSITY DRIVES no software ..... \$169.50

#### SOFTWARE

TURBO PASCAL ..... \$44.95 DATABASE MANAGER ..... \$ 44.95

KNOBELSPIEL GENERAHL ..... \$ 19.95

1, 2 or more player game for the entire family that requires your mind, rather than muscle or reflex, ages 8-80.

#### INFOCOM —NOW IN STOCK FOR SANYO (2.1 DOS)

INFIDEL ..... \$39.95 ZORK I ..... \$34.95

DEADLINE ..... \$39.95 ZORK II ..... \$34.95

WITNESS ..... \$39.95 ZORK III ..... \$34.95

STARCROSS ..... \$34.95 ENCHANTER ..... \$39.95

SUSPENDED ..... \$39.95 SORCERER ..... \$39.95

PLANET FALL ..... \$39.95 SEA STALKER ..... \$39.95

HITCHHIKER'S GUIDE ..... \$39.95

#### PLUS — EDUCATIONAL & BUSINESS SOFTWARE AVAILABLE

PARALLEL PRINTER CABLES for Sanyo ..... \$ 29.95

DS/DD 5 1/4 Disks ..... BOX OF 10 \$ 19.95

ORDER ONLY — CALL TOLL FREE — 1-800-233-3266

VISA, MASTERCARD, or C.O.D. Shipping & Handling 3% - \$3.00 Minimum

For information, technical service, catalog requests and in PA call Mon.-Sat. 1-717-836-4522

or write:



**M.W.S. COMPUTERS**

22 EAST TIOGA ST., TUNKHANNOCK, PA 18657





```

1430 IF ASC(C$(1))=ASC(C$(2)) AND ASC(C$(2))=ASC(C$(3)) AND ASC(C$(4))=ASC(C$(5))
) OR ASC(C$(1))=ASC(C$(2)) AND ASC(C$(3))=ASC(C$(4)) AND ASC(C$(4))=ASC(C$(5)) T
HEN GOTO 1450
1440 GOTO 1480:REM CHECK FOR STRAIGHT
1450 GOSUB 2300:SYMBOL(120,0),"** FULL HOUSE **",2,2,3
1460 SYMBOL(35,20),"THAT'S WORTH"+STR$(M*30)+" DOLLARS !!",2,2,3
1470 PQ=M*30:GOSUB 1840:GOTO 1830
1480 REM **** CHECK FOR STRAIGHT
1490 FOR I=1 TO 4
1500 IF ASC(C$(I))+1<>ASC(C$(I+1)) THEN GOTO 1560:REM CHECK FOR 3 OF KIND
1510 IF I=3 AND ASC(C$(5))=13 AND ASC(C$(1))=1 THEN GOTO 1530
1520 NEXT I
1530 GOSUB 2300:SYMBOL(150,0),"** STRAIGHT **",2,2,3
1540 SYMBOL(35,20),"THAT'S WORTH"+STR$(M*15)+" DOLLARS !!",2,2,3
1550 PQ=M*15:GOSUB 1840:GOTO 1830
1560 REM ***** CHECK FOR 3 OF A KIND
1570 IF ASC(C$(1))=ASC(C$(2)) AND ASC(C$(2))=ASC(C$(3)) OR ASC(C$(2))=ASC(C$(3))
AND ASC(C$(3))=ASC(C$(4)) OR ASC(C$(3))=ASC(C$(4)) AND ASC(C$(4))=ASC(C$(5)) TH
EN GOTO 1590
1580 GOTO 1620:REM CHECK FOR TWO PAIR
1590 GOSUB 2300:SYMBOL(80,0),"** THREE OF A KIND **",2,2,3
1600 SYMBOL(35,20),"THAT'S WORTH"+STR$(M*7)+" DOLLARS !!",2,2,3
1610 PQ=M*7:GOSUB 1840:GOTO 1830
1620 REM **** CHECK FOR TWO PAIR
1630 IF ASC(C$(1))=ASC(C$(2)) AND ASC(C$(3))=ASC(C$(4)) OR ASC(C$(1))=ASC(C$(2))
AND ASC(C$(4))=ASC(C$(5)) OR ASC(C$(2))=ASC(C$(3)) AND ASC(C$(4))=ASC(C$(5)) TH
EN GOTO 1650
1640 GOTO 1680:REM REM CHECK FOR PAIR
1650 GOSUB 2300:SYMBOL(130,0),"** TWO PAIR **",2,2,3
1660 SYMBOL(35,20),"THAT'S WORTH"+STR$(M*5)+" DOLLARS !!",2,2,3
1670 PQ=M*5:GOSUB 1840:GOTO 1830
1680 REM ***** CHECK FOR A PAIR
1690 IF ASC(C$(1))=ASC(C$(2)) THEN IF ASC(C$(1))>10 THEN GOTO 1800
1700 IF ASC(C$(1))=ASC(C$(3)) THEN IF ASC(C$(1))>10 THEN GOTO 1800
1710 IF ASC(C$(1))=ASC(C$(4)) THEN IF ASC(C$(1))>10 THEN GOTO 1800
1720 IF ASC(C$(1))=ASC(C$(5)) THEN IF ASC(C$(1))>10 THEN GOTO 1800
1730 IF ASC(C$(2))=ASC(C$(3)) THEN IF ASC(C$(2))>10 THEN GOTO 1800
1740 IF ASC(C$(2))=ASC(C$(4)) THEN IF ASC(C$(2))>10 THEN GOTO 1800
1750 IF ASC(C$(2))=ASC(C$(5)) THEN IF ASC(C$(2))>10 THEN GOTO 1800
1760 IF ASC(C$(3))=ASC(C$(4)) THEN IF ASC(C$(3))>10 THEN GOTO 1800
1770 IF ASC(C$(3))=ASC(C$(5)) THEN IF ASC(C$(3))>10 THEN GOTO 1800
1780 IF ASC(C$(4))=ASC(C$(5)) THEN IF ASC(C$(4))>10 THEN GOTO 1800
1790 GOTO 1830
1800 GOSUB 2300:SYMBOL(150,0),"** A PAIR **",2,2,3
1810 SYMBOL(35,20),"THAT'S WORTH"+STR$(M*2)+" DOLLARS !!",2,2,3
1820 PQ=M*2:GOSUB 1840:GOTO 1830
1830 GOSUB 590:RETURN
1840 REM ***** MINOR ROUTINES *****
1850 SYMBOL(140,40),"PRESS (RETURN)",2,2,3
1860 SYMBOL(94,60),"OR TYPE D TO DOUBLE",2,2,3
1870 IS=INPUT$(1)
1880 IF IS<>"D" THEN PL(Y)=PL(Y)+PQ:GOTO 2060
1890 GOSUB 2240:LOCATE 12,23
1900 PRINT "O.K. ODD OF EVEN? O/E? ";CHR$(8);
1910 IS=INPUT$(1):PRINT IS:IF IS<>"O" AND IS<>"E" THEN GOTO 1890
1920 A=3
1930 FOR J=1 TO 5:C$(J)="":NEXT J
1940 GOSUB 720:GOSUB 750:IF ASC(C$(3))>9 THEN GOTO 1940 ELSE GOSUB 2390:GOSUB 23
60

```



```

1950 NM=ASC(C$(3))
1960 NM=NM+1:NM=NM/2
1970 IF I$="E" AND INT(NM+.5)=NM THEN GOTO 2030
1980 IF I$="O" AND INT(NM+.5)=NM+.5 THEN GOTO 2030
1990 LOCATE 14,7
2000 PRINT "SORRY! YOU LOSE CARD WAS ";:IF I$="O" THEN PRINT "EVEN. ";
ELSE PRINT "ODD. ";
2010 PRINT "(RETURN) ";:I$=INPUT$(1)
2020 GOTO 2060
2030 LOCATE 14,1:PRINT "MATCH !! ";:PRINT PQ*2;"DOLLARS IS CREDITED TO YOUR ACC
OUNT. (RETURN)";
2040 I$=INPUT$(1)
2050 PL(Y)=PL(Y)+(PQ*2)
2060 LOCATE 14,1:PRINT STRING$(65,32);:RETURN
2070 REM ***** END
2080 CLS:PRINT"EVERYONE IS OUT OF MONEY."
2090 PRINT
2100 FOR I=1 TO N
2110 PRINT N$(I);" OWES";Q(I);"DOLLARS.":PRINT
2120 NEXT I
2130 PRINT"PLEASE PAY UP NOW !"
2140 END
2150 REM ***** ENTER BET *****
2160 LOCATE 12,1:PRINT N$(Y);"'S TURN.
2170 LOCATE 14,1:PRINT"YOU HAVE";PL(Y);"COINS. HOW MANY COINS TO BET ";:INPUT M
2180 IF M>1000 THEN LOCATE 13,1:PRINT"HOUSE LIMIT IS 1000 DOLLARS. TRY AGAIN.";
:GOTO 2230
2190 IF M>PL(Y) THEN LOCATE 13,1:PRINT"YOU DON'T HAVE THAT MANY.

```

## FILEBASE™

The EASY-TO-USE  
data base manager for CP/M, PC-DOS, MS-DOS

Finally! A simple yet powerful stand-alone data base program that doubles as a MailMerge files processor. 100% menu and prompt driven . . . no commands to remember . . . requires no installation! Produces ASCII comma delimited files compatible with WordStar, Data Star, dBase, Basic, etc. Produces either/and sequential or random access files . . . both with variable field lengths.

Unmatched user support included in the modest price of \$125 (includes ship. & handling) . . . probably one of today's best software bargains.

Scores of rave notices include: "Sorely needed super utility for MailMerge" in *PC Magazine*; "Easy to learn, simple to use. Not a stripped down program" in *Data Based Advisor*; "Don't use MailMerge without Filebase" in *PC Magazine*; "For its price, the best we've seen" in *User's Guide Magazine*. Selected as a "Top 50" program by *LIST Magazine*!

**ALL FORMATS AVAILABLE.** Specify computer, operating system and disk.

EWDP Software, Inc., P.O. Box 40283, Indianapolis, IN 46240

We accept Visa, Amex, MasterCard, Check, COD.

Telephone orders, inquiries & support: (317) 872-8799

Trademarks: CP/M, Digital Research; MS-DOS, Microsoft; PC-DOS, IBM; FILEBASE, EWDP Software, WordStar/MailMerge/DataStar, Micropro; dBase, Ashton-Tate.

CHECK-MATE

IT MAKES CENTS

SANYO 555

- CHECK-MATE is a Complete Home Book-keeping System for your personal computer.
- CHECK-MATE Will help you keep track of up to 100 different account categories.
- CHECK-MATE allows you to keep 30 payee's on file.
- CHECK-MATE will grow with you.
- You may add on CHECK WRITER, which allows the computer to print out checks.
- You may also add HOME-BUDGET which will give you better control of your finances.

All For A Low Price Of  
**\$59.95**

DEALER INQUIRIES INVITED

**GM ASSOCIATES**

710 N. New Ballas Rd.  
Creve Coeur, MO 63141  
(314) 997-SOFT



3  
♥

```
" ;:GOTO 2230
2200 IF M=0 THEN M=1
2210 LOCATE 13,1:PRINT STRING$(60,32);
2220 RETURN
2230 LOCATE 14,1:PRINT STRING$(65,32);:GOTO 2160
2240 REM **** CLEAR FOR NEXT PLAYER ****
2250 FOR C=18 TO 25
2260 LOCATE C,1
2270 PRINT STRING$(65,32);
2280 NEXT C
2290 RETURN
2300 REM ***** CLEAR FOR DISPLAY OF WIN *****
2310 FOR O=1 TO 12
2320 LOCATE O,1:PRINT STRING$(60,32);
2330 NEXT O
2340 RETURN
2350 REM ***** CORNER LETTER *****
2360 SYMBOL((A-1)*104+6,139),A$,2,1,3
2370 SYMBOL((A-1)*104+93,195),A$,2,1,3,2
2380 RETURN
2390 REM **** CORNER SUIT *****
2400 ON S GOTO 2410,2440,2470,2500
2410 REM **** CLUBS
2420 SYMBOL((A-1)*104+37,160),CHR$(15),4,2,3:SYMBOL((A-1)*104+4,148),CHR$(15),2,
1,3:SYMBOL((A-1)*104+95,186),CHR$(15),2,1,3,2
2430 RETURN
2440 REM **** SPADES
2450 SYMBOL((A-1)*104+37,160),CHR$(5),4,2,3:SYMBOL((A-1)*104+6,148),CHR$(5),2,1,
3:SYMBOL((A-1)*104+93,186),CHR$(5),2,1,3,2
2460 RETURN
2470 REM **** DIAMONDS
2480 SYMBOL((A-1)*104+37,160),CHR$(4),4,2,3:SYMBOL((A-1)*104+6,148),CHR$(4),2,1,
3:SYMBOL((A-1)*104+93,186),CHR$(4),2,1,3,2
2490 RETURN
2500 REM **** HEARTS
2510 SYMBOL((A-1)*104+37,160),CHR$(3),4,2,3:SYMBOL((A-1)*104+6,148),CHR$(3),2,1,
3:SYMBOL((A-1)*104+93,186),CHR$(3),2,1,3,2
2520 RETURN
2530 REM **** BEGINNING ****
2540 CLS:PRINT"HOW MANY WISH TO PLAY (1-6) ";:N$=INPUT$(1):N=VAL(N$):PRINT N
2550 IF N<1 OR N>6 THEN GOTO 2530
2560 FOR I=1 TO N
2570 PRINT:PRINT"ENTER PLAYER";I;"'S NAME (12 CHARACTER OR LESS).";:INPUT N$(I)
2580 IF N$(I)="" THEN N$(I)="NO NAME"+STR$(I)
2590 N$(I)=LEFT$(N$(I),12)
2600 PRINT:PRINT"HOW MANY DOLLARS DO YOU WISH CREDIT TO ";N$(I);" 'S ACCOUNT ";:I
NPUT PL(I)
2610 IF PL(I)>1000 THEN PRINT "MAXIMUM CREDIT IS 1000 DOLLARS. TRY AGAIN.":PRIN
T:GOTO 2600
2620 Q(I)=PL(I)
2630 IF PL(I)=0 THEN GOTO 2600
2640 NEXT I
2650 PRINT:PRINT"PRESS (RETURN) TO BEGIN";:I$=INPUT$(1)
2660 RETURN
2670 REM ***** SORT HAND *****
2680 FOR I=1 TO 4
2690 FOR J=I TO 5
2700 IF C$(I)>C$(J) THEN SWAP C$(I),C$(J)
2710 NEXT J,I
```



```

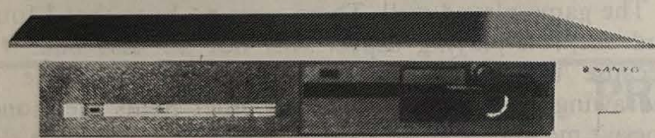
2720 RETURN
2730 REM **** TITLE PAGE *****
2740 CLS:LOCATE 15,3
2750 SYMBOL(1,112),"5-CARD DRAW PO",1,2,3,3
2760 SYMBOL(17,1),"KER! 5-CARD DRAW POKER! 5-CARD DRAW",2,1,3
2770 SYMBOL(639,1),"POKER! 5-CARD DRAW POKER",1,2,3,1
2780 TS="B":TT=3:GOSUB 430
2790 LOCATE 6,58:PRINT"5-CARD DRAW POKER"
2800 LOCATE 8,57:PRINT"BY: RODNEY VIESSMAN"
2810 LOCATE 15,3
2820 GOTO 2900
2830 FOR A=1 TO 5
2840 D(A)=0
2850 GOSUB 720:GOSUB 750:GOSUB 2390:GOSUB 2360
2860 NEXT A
2870 GOSUB 2670
2880 FOR I=1 TO 1500:NEXT I
2890 GOSUB 2240
2900 SYMBOL(90,160),"PRESS (RETURN) TO PLAY",2,2,3
2910 FOR I=1 TO 1000
2920 AS=INKEY$
2930 IF AS="" THEN NEXT I:GOTO 2960
2940 IF ASC(AS)=13 THEN GOTO 2980
2950 AS="":GOTO 2930
2960 GOSUB 2240
2970 GOTO 2830
2980 TS="":TT=1
2990 RETURN

```



**NOW  
AVAILABLE!**

## The Only Internal Hard Disk Drive For The SANYO 550



Systems Peripherals Consultants is now providing the answer to your mass storage problems with fast access Winchester disk drives from 10 Mb. to 40 Mb. in a convenient *internal* installation or up to 480 Mb. in our external chassis.

We also provide removable Winchester drives with 5.4 Mb. capacity which double as both an on-line storage device and high speed backup. Installation requires only a screwdriver and takes about ten minutes, and we deliver from stock... not promises.

Call SPC now and ask for more information. Quantity and prepayment discounts are available.

### SYSTEMS PERIPHERALS CONSULTANTS

9747 Business Park Avenue • San Diego, CA 92131 (619) 693-8611

## AA COMPUTER EXCHANGE

"SOUTH'S LEADING SANYO DEALER"  
COMPLETE SELECTION OF SANYO SOFTWARE

REQUEST OUR FULL SANYO CATALOG TODAY

**ORDER LINE: 1-800-447-0088**

**INQUIRIES & FL: 904-388-0018**

### HERE ARE A FEW OF OUR MAIL ORDER PRICES

HARDWARE			
Sanyo 550-2 (1-360K)	\$699	Hermit's Secret	\$17
Sanyo 555-2 (2-360K)	999	Phantom's Revenge	17
Sanyo 775 Color Port	2336	Word Wiggle	24
512K Kit Michtron	219	Munchkin	17
512K Plans Michtron	10	Eliza	17
10 MEG Michtron	1242	Monster Rally	17
160K Teac Drive	119	<b>MICHTRON</b>	
160K Teac Drive w/SW	263	Picasso (256K)	75
360K Teac Drive	159	DS DOS+ (1.25 or 2.11)	38
360K Teac Drive w/SW	359	MI-Term (128K)	60
800K Teac Drive	179	M-Disk (256K)	27
64K Mem Exp (150 NS)	36	Freez Frame (128K)	30
128K Mem Exp (150 NS)	72	MI-Key (128K)	27
Sanyo/IBM Graphics Brd	179	Graffiti (256K)	30
Joystick	20	Cashman	27
Sanyo RS-232 Card	69	Demon Seed	27
300 Baud Volsmodem	54	DC-10 Flight Simulator	30
300/1200 Auto-Volsmodem	199	Rebounce	19
RGB Monitor 13"	269	Solitaire	27
Sanyo CRT 50"	389	Adventure Disk #2	30
Sanyo CRT 70"	565	Adventure Disk #3	30
Green Monitor 12"	89	Super Zap	38
Amber Monitor 12"	89	Business Agreements	38
Panasonic 1091 NLQ	299	Major Motion	30
TTX Daisy w/Tractor	367	Quick & Simple	38
TTX 64K Buffer	199	Soft Spool	27
Silver Reed EXP 500	370	Emperor	27
Silver Reed EXP 550	438	Time Bandit (128K)	27
Sanyo PR5000 LQ	402	Master Graph (128K)	68
Sanyo PR5500 LQ	622	Rebounce	19
BASF DS/DD 5 1/4"	18	Mighty Mail	75
<b>NORELL</b>		King Arthur	19
LISP/88 Intrp.	34	Thunder Chief (128K)	27
Computer Chief	34	Joystick Ext. Cable	22
Original Adv.	17	Tic Tac Toe	19
		Printer Helper	27
		Transfer	\$45
		Personal Money Manager	38
		<b>OLYMPIC</b>	
		Inventory	75
		Payroll	75
		General Ledger	75
		Accts. Receivable	75
		Accts. Payable	75
		Order Entry	75
		Postmaster II	38
		Money Analysis	29
		Finance Manager	29
		Appointment Book	29
		Touch Skills	29
		States & Capitals	23
		Body Systems	29
		Trivia Mania	29
		Flyboy Flight Sim.	29
		Byte Buster	23
		Flash Card	23
		Blackjack	30
		Spelling Bee	30
		<b>A-OK</b>	
		DOS-1 w/Print Screen	33
		DOS-2 w/Print Screen	40
		DOS-3 w/Print Screen	47
		DOS-4 w/Print Screen	47
		Janus/ADA Series	445
		<b>COMPUTER TOOLBOX</b>	
		Intellicom	57
		<b>U.S. DIGITAL</b>	
		Copylink (Term)	73
		CPEMULATON	73
		<b>2500AD</b>	
		8086 Macro Assembler	89

**2726 PARK ST., JACKSONVILLE, FL 32205**

Orders with cashiers check, money order and VISA/MC shipped promptly • For personal/company checks allow 3 weeks for clearance • No CODs • For VISA/MC add 3% • Shipping charges extra, \$3.00 minimum • Prices may differ in AA stores • Florida residents add 5% tax • Prices subject to change without notice.



## REVIEWS



### Software review

## *Tanner and the Jungle Temple — Adventure At The Keyboard*

The game *Tanner and the Jungle Temple* is one of the first graphics role-playing Adventures for the Sanyo computer. By role playing, I mean that the character you play in the Adventure can get better. He or she can go up in strength or other things — the more you play, the harder it is for your character to get killed. Another thing that you can do in a role-playing game is buy your character different items, like lamps, guns, and a lot of other things. In these respects, the game is a good one.

There are other things that a role-playing game should have that *Tanner* does not have. One of these is the ability to make your own characters. You should be able to make your own man or woman and not have to always use the one that comes with the game disk.

In the upper-left corner of the screen you are presented with a 3-D view of what you see as you are walking down the halls of the temple. The lower-left corner of the screen is where the monsters appear and the whole right side of the screen is where your inventory is shown. At first glance there seems to be nothing wrong with this display. That is at first. Once you start to play, the beauty of it starts to fade fast. First off, if you have a monochrome monitor then you are fine, but if you spent that extra couple hundred to get an RGB color monitor, then this game will transform it into a monochrome when you play *Tanner*. There is no color used in the game. The Sanyo computer has superb color graphics and not one of them is used, and that is a shame.

As you move down the halls of the temple, the upper-left corner moves as if you were really walking down the hall. It is a nice 3-D view of what you see and it moves closer as you move forward. There is a small flaw in the way they programmed this too, though. Instead of just the upper-left corner of the screen changing (that is where the 3-D view is), the whole screen is rewritten. This means that the 3-D view is redrawn, the lower-left corner is redrawn, and the right side (where your inventory is) is redrawn. Now this might not be that bad, but when you get into the game and have a lot of inventory, then this takes awhile to redraw each time you move. If *Tanner* didn't redraw the whole screen then it would move a lot faster, but the redrawing does slow it down quite a bit.

Let's talk monsters. The monsters are drawn in the lower-left corner — all other times the company's logo is there. Every time you come across a monster, it will be drawn in the corner. You can either fight or run, but first let me tell you what the monsters look like. The drawings of the monsters do not take advantage of the Sanyo's great graphics capability. When you meet the "man with a gun," all you see is cross hairs; for "a large man with a knife," all you see is an outline of a knife; for "a small man with a knife," you see the same outline of the knife; and for "spiders," all you see is a sketch of a web. As you may have noticed, there are no detailed graphics that one would expect from the Sanyo.

The game played well. There were no bugs that I found and the role-playing aspect was not all that bad. Just because there were a few overlooked items, like the redrawing of the screen and the other items mentioned, doesn't mean it is a bad game. If you can handle the slow moving screen and the lack of good graphics, then you might have fun playing *Tanner*.

*Tanner* has nine levels in the temple, so you could play for quite awhile. There are a lot of items you can buy or find in the temple, and the internal workings of the game are put together well. So if graphics and speed are not a concern of yours and you like Adventure role-playing games, then *Tanner and the Jungle Temple* might be the game for you.

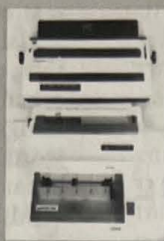
*Tanner and the Jungle Temple* is made by the Moonwolf Game Company. The Moonwolf Game Company gives you a one year warranty on all of their software. Should any product prove defective in one year, it will be replaced.

(Moonwolf Game Company, 1480 F Terrel Mill Rd., Suite 712, Marietta, GA 30067, \$25)

— Pat Brestel



# LET THE SOURCE BE WITH YOU



## DISPLAYED VIDEO PRESENTS THE AFFORDABLE SANYO

MBC550/With <b>FREE</b> Printer.....	<b>\$949.00</b>
MBC555/With <b>FREE</b> Printer.....	<b>\$1249.00</b>
MBC550-2/With <b>FREE</b> Printer.....	<b>\$989.00</b>
MBC555-2/With <b>FREE</b> Printer.....	<b>\$1489.00</b>

\*ALL 550 SERIES COMPUTERS ABOVE INCLUDE ONE **FREE** GEMINI 10X PRINTER.

GEMINI 15X PRINTER ONLY \$100 ADDITIONAL.

**RS232** for 550 Series with **FREE** Terminal

Software..... **\$97.00!!**

64K Memory Upgrade..... **\$54.00**

MBC555 & 555-2 include Wordstar, Calcstar, MSDOS, Spellmaster, Mailmerge & Infostar. MBC550 & 550-2 include Wordstar, Calcstar & MSDOS.

MBC1100/With <b>FREE</b> Printer.....	<b>\$1289.00</b>
MBC1200/With <b>FREE</b> Printer.....	<b>\$1479.00</b>
MBC4000/With <b>FREE</b> Printer.....	<b>\$1599.00</b>
MBC1150/With <b>FREE</b> Printer.....	<b>\$1499.00</b>
MBC1250/With <b>FREE</b> Printer.....	<b>\$1699.00</b>
MBC4050/With <b>FREE</b> Printer.....	<b>\$1799.00</b>

\*ALL 1100, 1150, 1200, 1250, 4000, 4050 COMPUTERS INCLUDE ONE **FREE** PR5000 LETTER QUALITY PRINTER. PR5500 ONLY \$100 ADDITIONAL.

MBC1100, 1200 & 4000 Series Computer: Include Wordstar, Calcstar, CPM 2.2, Datastar, Reportstar & Mailmerge.

## DRIVES

\***GOOD NEWS** \* SANYO 550 & 555 owners, increase your storage capacity! Upgrade your Sanyo to Double Sided drives.

The upgrade includes two TEAC FD55B drives and a double sided software modification for only..... **\$365.00!!!**

Double sided software modification..... **\$39.95**

TEAC add-on 160K external drive with case & power supply..... **\$195.00**

TEAC add-on 360K external drive with case & power supply..... **\$240.00**

## MODEMS

Hayes 300 Baud Modem.....	<b>\$215.00</b>
Hayes 1200/300 Baud.....	<b>\$480.00</b>
Anchor 300 Baud Volksmodem.....	<b>\$65.00</b>
Anchor 1200/300 Mark XII-(Hayes Compatible).....	<b>\$259.00</b>

## MONITORS

Comrex Amber 12".....	<b>\$125.00</b>
Comrex Green 12".....	<b>\$115.00</b>
BMC Amber 12".....	<b>\$105.00</b>
Sanyo CRT36.....	<b>\$170.00</b>
Sanyo CRT70.....	<b>\$579.00</b>
Amdek Color III +.....	<b>\$385.00</b>

## PRINTERS

Epson RX80.....	<b>\$295.00</b>	Epson LQ1500.....	<b>\$1195.00</b>
Epson RX80 FT.....	<b>\$349.00</b>	Sanyo PR5000 Letter Quality.....	<b>\$479.00</b>
Epson RX100.....	<b>\$549.00</b>	Sanyo PR5500 Letter Quality.....	<b>\$695.00</b>
Epson FX80.....	<b>\$559.00</b>	Gemini 10X.....	<b>\$315.00</b>
Epson FX100.....	<b>\$729.00</b>	Gemini 15X.....	<b>\$479.00</b>

Sanyo Printer Cable..... **\$21.95**

Visit our two  
retail locations at:

**886 Ecorse Road  
Ypsilanti, MI 48197**

**(313) 426-5086/(313) 482-4424**

or

**111 Marshall Street  
Litchfield, MI 49252**

**(517) 542-3280**

**(517) 542-3939**

**(517) 542-3947 Authorized Sanyo Distributor/Repair Center**

**WE CARRY TRS80 & SANYO COMPUTERS**

**IMMEDIATE DELIVERY**

**180 Days Parts and Labor Warranty**



**DISPLAYED  
VIDEO**



**SANYO**

**TO ORDER: Call (313) 426-5086; (313) 482-4424; (517) 542-3280  
(517) 542-3939 (517) 542-3947**

**DEALERS BUY DIRECT FROM THE SOURCE!**

Prices & Specifications subject to change without notice



## **W-ED — Word Processing In A Few Easy Lessons**

Do you write long documents every week? Every day? If so, the package for you came with your Sanyo — *WordStar*. However, if you only write a few letters every now and then, or if the kids like to use the computer to do their homework once in a while, you might find *WordStar* just a trifle cumbersome to use. There are many commands, and if you don't write regularly, there is a tendency to forget them. You find yourself spending more time looking up commands than you spend actually writing.

If you find yourself in this second category, take a good look at *W-ED* by WyndhamWare. This is a nice little text editor selling for \$40 which is easy to learn and even easier to use.

First of all, you will notice that *W-ED* is not advertised as a word processor, but a word processing text editor. I have seen numerous definitions of the two and will not get into them here. From a practical standpoint, the most

important difference is the lack of printer control in the text editor. Most of the other goodies are there.

Using *W-ED* you can set up margins, center text, set tabs, do searches, move and copy blocks, and perform many other useful operations. In fact, you can do most of the things you can do with *WordStar*, or any other full-blown word processor. But don't try to find a print command because there isn't one.

Although it sounds like a catch, it's not really. You can use your DOS PRINT utility to do the printing for you. I suggest that you put the PRINT.COM program on your *W-ED* disk. When you are ready to print, just type in PRINT filespec. This will cause your printer to type out the contents of the file. It's very simple.

Running *W-ED* is no problem at all. It can be put into operation in just a little more time than it takes to load the disk. I do suggest that you print out the READ.ME file first, though, using PRINT.COM.

The screen editor is quick and responsive. It features full word wrap, at your choice, and a useful and unobtrusive message line to tell you when word wrap is in use or when other conditions exist, depending on how you install the program. There is an installation program on the disk.

Another use for *W-ED* is as a text editor for writing programs. Many compilers are somewhat lacking in text editing capabilities. *W-ED* can solve this problem for you. All you have to do is type in your program and then compile it. Since *W-ED* is not copy protected, you can put it on the same disk as your compiler.

I have only one small problem with the package. The documentation I received was written for the IBM, and addendums were sent along to cover the Sanyo version, which is also covered in the READ.ME file on the disk.

The documentation is not really bad at all if you are using the IBM version. Perhaps new documentation for the Sanyo version will be out shortly. In the meantime, between the disk and the addendum, the documentation is adequate.

For writing short documents without all the hassles of a full-blown word processor, I don't see how you could beat *W-ED* for the price.

(WyndhamWare, P.O. Box 729, Renton, WA 98057-0729,  
206-237-1557, \$40)

— Jim Pile

### **GOOD STUFF!**

**Sanyo 550/555  
IBM PC & Compatibles  
IBM-PC Junior  
⇒ GREAT PROGRAMS ⇐  
★ SUPER LOW PRICES ★  
SUPER SAMPLER \$5 PPD  
SS1-SS12 DISKS \$8.95 PPD**

Looking for good low-cost programs for your Sanyo 550/555, as well as good, solid information? You've found it!

Business, Financial, Games galore, Educational, Utilities and Graphics. They are all here! There are presently 12 disks and each has 7 to 12 programs each. They are all listable and unprotected. Don't take our word for it! Send \$5 for our Super Sampler diskette with 10 great programs, including a super loan amortization program, graphic blackjack, a full adventure and more! Full info on our other products and our information-packed newsletter will be included with your order!

**SUPER MAILING LIST  
14.95 Postpaid**

Add, change, delete names, addresses and phone numbers with 8 category flags to select on. Prints lists or labels. Sort on zip or names. A random access tutorial in itself. **A SUPER VALUE!**

**COMPUTER SOLUTIONS  
P.O. BOX 354  
MASON, MICHIGAN 48854  
(517) 628-2943**

**Phone Orders Welcome - Quick Service**



### **10 MEG EXTERNAL HARD DISK \$1,245**

MISSOURI RESIDENTS ADD 5.625% SALES TAX. FOR SANYO 550/555 SERIES COMPUTER ONLY. SIX MONTH LIMITED WARRANTY.

SYSTEM COMPLETE WITH HOST ADAPTER AND PATCHES TO 2.11 DOS. READY TO RUN, 10 MINUTE INSTALLATION.

**LEMCO**

**THE LEMBERGER CO.  
100 N. MAIN ST., VIENNA, MISSOURI**

"Dealer Inquiries Welcome"

65582

SERVING MICROCOMPUTER USERS SINCE 1978 **PHONE (314) 422-3353**



## CheckFile — Personal Checking Made Easy

Do you dread seeing your checking account bank statement in the mail every month knowing there will be countless hours of reconciliation to do? Well, *CheckFile* can help take some of the headaches out of that tedious task.

*CheckFile* is an integrated set of programs for personal financial record keeping that run on the Sanyo MBC-550/555 series computers. It is a database-type system featuring random access and sort utilities not found in most personal check register programs. It can sort records by check number, name or description and 18 subject areas. Most outputs can be directed to the screen or printer. Some useful reports that can be generated are cash flow analysis and financial projections. Also, *CheckFile* has a password lockout option for users who need their data restricted.

To use *CheckFile*, put a copy of the diskette into drive A: and turn on the computer. It will automatically load and the date prompt will appear, followed by the password prompt. After entering the correct date and password, the following main menu options will appear:

- 1) Create new Records
- 2) List all the Records
- 3) Search for a Record by Name
- 4) Search for a Record by Number
- 5) Search for a Record by Code
- 6) Check cash flow or display sort
- 7) Close the file and end the program

Adding records such as deposits, checks, adjustments and the like, is easily accomplished by following the program prompts. However, I did have a little trouble entering deposits and adjustments, because in the first prompt after entering the first option, "Create new Records," it asks you to enter a number. This number entry can only be a three-digit number or code. This limits you to a three-digit check number, which gave me problems because my checks have four digits! The program also allows an entry of an alphanumeric code such as DEP or ADJ.

*CheckFile* has a feature which will bring back the main menu from anywhere in the program by simply pressing RETURN. This is a very nice feature for novice users. To have the search features work properly, all entries in the search field must match exactly, even the upper- and lowercase letters.

Each record entered into the system can be labeled with a code: For example, 1=Deposit, 4=Electricity, 9=Food, 11=Housing, etc. There are 18 available codes to use which are all preset and cannot be changed. This code should help immensely at year end when information on yearly expenditures is needed for taxes.

The cash flow and sort options will estimate cash flow

action based on January and succeeding months along with providing a list of amounts according to the sort code selected to the screen or printer. There is an option to correct or adjust the totals of your check register to your bank statement balance so they will agree. This option is contained in a small BASIC program that needs to be run when an adjustment is needed.

In reviewing *CheckFile*, I came up with some other points that might be of interest. There is really no way to delete an entry once it has been entered. It can be changed or modified but not deleted. Also, there is very good entry error trapping in the main menu, but it is not very good in other parts of the program. Some of the entries allow you to use a single keystroke entry, which is nicer than making you select and enter the option number or letter and then hit RETURN, which you have to do in most of the entries. Finally, there is really not much of a documentation manual, but the program is menu driven and so easy to use that a detailed user's manual is not needed.

*CheckFile* appears to be a versatile, personal financial record keeping system which is very easy to use. In order to have it perform and assist you as it should, however, you must have the time to enter all your checks, deposits and the like on a regular basis.

(Shamrock Software, P.O. Box 3445 CS, Moscow, ID 83843, 509-878-1714, \$12.95)

— John Kandra



## DISKount SOFTWARE

We take a Byte out of Prices

### MICHTRON:

M Disk	\$29.95
DS DOS Plus	\$42.49
Freeze Frame	\$33.95
Graffiti	\$33.95
Mi-Key	\$29.49
Super Zap	\$42.49
Cormerman	\$33.95
Adventure Disk # 2	\$33.95
Adventure Disk # 3	\$33.95
Cashman	\$29.95
Demon Seed	\$29.95
Thunder Chief	\$29.49

### PRICKLY-PEAR SOFTWARE:

Personal Financial Mgmt. Sys.	\$42.49
Fantasy Gamer's Bonanza Pkg.	\$29.49
Viking!	\$29.49
Astrology	\$29.49
Trivia Trivia	\$29.49
Additional Question Disks:	
Entertainment	\$16.49
Bible	\$16.49
Sports	\$16.49
Children	\$16.49

### MICHIGAN SOFTWARE:

Screen print	\$25.49
Sanyo Direct Transfer	\$25.49
Character Generator	\$21.49
PF Key	\$ 8.49
Keyword	\$ 8.49
Save Screen	\$21.49
U.S. Capitals & States	\$25.49

### LEVEL IV:

Print Spooler	\$33.95
---------------	---------

### OLYMPIC EDUCATIONAL SOFTWARE:

Appointment Book	\$33.49
Touch Skills	\$33.49
Flyboy	\$33.49
Inchworm	\$25.49
Postmaster II	\$42.49
Body Systems	\$33.49
States & Capitals	\$25.49

**64K Memory Upgrade**  
**150 NS \$39.49**

★ Don't See What You Want ★  
ASK!

Send Order To: **DISKount Software**  
9860 East Mary  
Tucson, AZ 85730  
602-298-3624

Personal check welcome... No delay — Add \$2.00 S/H for each program ordered (6.00 max). Add \$2.00 for C.O.D. AZ residents add 7% sales tax.



## VersaCom — VT100 Terminal Emulation With Kermit And XModem Protocols

Have you spent hundreds of dollars on different communications programs, yet still haven't found the one that meets your needs? Have you accessed bulletin boards all over the country, but still can't communicate with the mainframe down the street? You say you don't know the difference between a bit or a byte, a terminal or a host, and if you hear one more buzzword, you're going to fold, spindle and mutilate all of your floppies? Well cheer up, Bunky! I have a solution for you.

*VersaCom*, by Solution Software, is a reasonably priced, well-documented communications package for the Sanyo MBC-550/555 series of computers which offers both terminal emulation and file transfer capabilities in one program. *VersaCom* can meet the demands of most any terminal users' needs, whether it is accessing your favorite computerized bulletin board or your university's and/or employer's mainframe computer.

*VersaCom* provides VT100 terminal emulation which conforms to the ANSI standards. The authors of *VersaCom*, Lorrain and Kelvin Nilsen, have stated, "Emulation of the VT100 terminal is important because many programs are designed exclusively for use with ANSI or VT100 terminals."

If you have ever signed onto CompuServe, or plan to, one of the things you must do is select from the menu a type of terminal emulation you will use. VT100 is one of the predefined selections requiring no additional input. However, Sanyo owners who do not chose the VT100 selection should choose the "Other" selection and be prepared to answer the additional questions.

During file transfers, users of *VersaCom* may choose between *XModem* or *Kermit*. Both have been available in the public domain for several years and *XModem* is currently the preferred protocol used in micro-to-micro file transfers. Although *XModem* is faster and better known than *Kermit*, it has less sophisticated error detection. *Kermit*, on the other hand, is especially useful for communicating with many different types of computers, including mainframes and minicomputers.

**EZWTOTXT** converts EasyWriter I files to plain ASCII text. Permits off-line printing, use with other word processors. \$14.95

**OPTIONS** stock and commodity options analyzer. Identifies over-and under-priced options, hedge ratios for spreads, security volatility, more. \$49.95

Send check or money order to Sigma Research Associates, 5666 La Jolla Boulevard, Suite 107, La Jolla, CA 92037. 619-459-2743. Add \$1.75 shipping/handling.

According to the Nilsens, the *Kermit* file transfer protocol is one of the only protocols that is capable of transferring files between a microcomputer and a mainframe. This implementation of *Kermit* includes eight-bit quoting which allows compression of data as it is transmitted. Currently, *VersaCom's Kermit* does not understand "server mode."

In addition to this, the *Kermit* file transfer protocol is defined and supported by Columbia University, which distributes versions of *Kermit* to run on many different computers for a nominal media fee.

Below are some of the more popular *Kermit* implementations which can be obtained from Columbia University:

Machine	Operating System
DEC-10	TOPS-10
DEC-20	TOPS-20
IBM 370 Series	VM/CMS, MVS/TSO, MTS
IBM PC and Compatibles	PC-DOS, MS-DOS
CDC Cyber 170	NOS, NOS/BE
Sperry/Univac-1100	EXEC
Honeywell	MULTICS
DEC VAX-11	VMS
DEC PDP-11	RT, RSX, RSTS, MUMPS
DEC Pro-300 Series	P/OS
VAX,PDP-11,SUN,etc.	UNIX
PRIME	PRIMOS
HP3000,Univac,etc.	Software Tools Ratfor
HP1000	RTE
APOLLO	Aegis

Additional information about the *Kermit* protocol or the machines capable of running *Kermit* can be obtained through writing:

Kermit Distribution  
Columbia University Center  
for Computing Activities  
7th Floor, Watson Laboratory  
612 West 115th Street  
New York, NY 10025

*VersaCom* is command-line oriented and online help can be obtained through the use of the "?" key. Typing the "?" key at any prompt will return a list of available commands. Further explanations of individual command usage can be obtained by typing the command, followed by a space and the "?" key. For example, typing "SET ?" will provide

### OUTCLASS THE PC

To add ¼ or ½ million bytes of RAM memory to your MBC. Just plug our board onto your mother board and get a total of 512K or 768K bytes! No soldering or wiring. Low power.

512K RAM board .....	\$435.00
258K RAM board 1 .....	\$319.00
Board with logic no RAM .....	\$199.00
Bare board .....	\$ 99.00

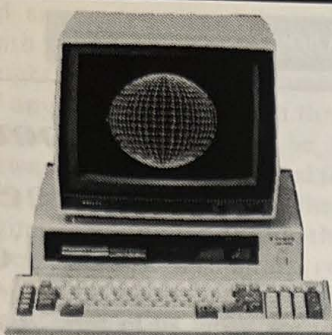
No C.O.D.'s

Thumper Productions  
3550 Londonderry Ln. S.W.  
Roanoke, Virginia 24018

Guaranteed

(703) 774-1484





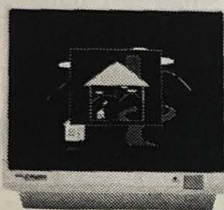
## New Low Prices for Sanyo 555-2's

Not only do we have better prices than any other advertiser in Soft Sector for the Sanyo 550-2's and 555-2's we also include, at no extra charge: (1) Sketch-A color graphics drawing program; (2) 15 Games for the Sanyo, a \$29.95 package; (3) Datemate - an appointment program with a perpetual calendar; (4) Diagnostics - tests your RAM, display, and keyboard; (5) PC Filer - the program that made "freeware" famous; (6) Three extra utilities that don't come on the systems disk; (7) I.S. Manager - Allows you to change the structure of existing InfoStar records.

Our 555-2's have all Sanyo parts including grey Sanyo drives, and we stock both Starpacks and Easypacks. We stock reference manuals for our customers, and offer factory trained service.

Plus if you mention this ad when you buy your Sanyo from Scottsdale Systems you can buy an RS-232 port or an extra 128K of memory for a mere \$69. Yes we have great prices for Sanyo computers but we offer more, and that's why we've sold more Sanyo computers than any other dealer in America.

Sanyo 1100's w/2 drives ..... \$848



## 14" RGB from NEC

We went to Comdex with one main mission, to find the best deal in a color monitor for the Sanyo 550 series. The NEC JC-1460DA is a 14" RGB with a 500 horizontal by 240 vertical resolution. Characters are formed by an 8x8 matrix, and is quite good even in monochrome. The unit features a black background and looks much better than the color monitors from Sanyo. The list price is \$499 without a cable. For you with a cable to your Sanyo ..... \$388

## PRINTERS

Gemini 10X .....	\$244
Okidata 92 <del>W</del> .....	\$125 off
Epson FX-80 <del>W</del> .....	\$180 off
Juki 6100 .....	\$399

## — SPECIAL SALE! — STARPACKS OR EASYPACKS

Oops we overbought - While they last - your choice DataStar, ReportStar, MailMerge, and SpellStar; or EasyWriter II, EasyMailer, EasyFiler, and EasyPlanner - out they go for a mere \$189

# Scottsdale Systems, Ltd.

617 N. Scottsdale Rd., #B, Scottsdale, Az 85257

VISA

1 (602) 941-5856

MasterCard

## MODEMS

Passwords .....	\$309
Prometheus .....	\$339



## The Silver Fox™ Trots through Lotus like 1,2,3

The Silver Fox has always run hundreds of programs originally written for the IBM-PC. Now with its new compatible video board and GW Basic it runs the most popular and powerful software in microcomputing, including Lotus 1,2,3, dBASE II, Multiplan, the PFS series, and even Flight Simulator. Yet you still get an incomparable combination of hardware and software at a price that invites comparison.

## MORE HARDWARE

Each Silver Fox comes with an 8088 CPU, 256K of RAM, monochrome and color video, and a printer port all on a single board. Plus you get more than twice the storage of a standard PC, 1.6 Megabytes on dual 5 1/4" floppies, and the Fox will read and write to all popular PC formats.

Standard equipment also includes a better keyboard, and a 12" high-resolution, green monochrome monitor, with a full 25x80 column display. And although the Silver Fox doesn't have "compatible" expansion slots you can add serial ports, modems, plotters, printers, joysticks, and 8087 co-processor, and/or a hard disk.

Because the Silver Fox is born on a totally automated line in Japan it is simply more reliable than PC's that are assembled by hand. So we back each Silver Fox with a one year limited warranty, four times the industry standard.

## FREE SILVERWARE

Were this not enough, each Fox comes with the best free software bundle in the business including:

MS-DOS 2.11	Sketch	Spell
Color BASIC	15 Games	Mailit
GW BASIC	WordStar	FILEBASE
HAGEN-DOS	CalcStar	PC File III
Qwikdisc	Easy Writer	PD Disk
Datemate		

If you didn't think your

# \$1397

could buy you this much computer, give us a call at

# 602-941-5856

and we'll rush you a brochure that will tell you how it can.

ColorFox ..... \$1688

The Silver Fox is sold exclusively by Scottsdale Systems Ltd., 617 N. Scottsdale Road #B, Scottsdale, AZ 85257. Trademarks: Silver Fox, HAGEN-DOS, Qwikdisc, Datemate, and Mailit; Scottsdale Systems Ltd. WordStar and CalcStar, Micropro International, MS-DOS, Multiplan, Microsoft Corporation, FILEBASE, EWDP Software, Inc. dBASE II, Ashton-Tate, IBM-PC, International Business Machines Corporation. Ordering: Telemarketing only. Silver Fox price is for cash, F.O.B. Scottsdale, prices subject to change, product subject to limited supply. We accept purchase orders from Fortune 1000 companies and major universities with good credit - add 2% Visa, Mastercard add 3%, AZ residents add 6%. Returned merchandise subject to a 20% restocking fee. Personal or company checks take up to 3 weeks to clear. No COD's or APO's.



the user with over 17 possible parameters; i.e., Baud, Parity, *XModem* or *Kermit*, Local or Remote, etc.

At present, *VersaCom* does not provide any predefined CALL routines or support any telephone directories. With *VersaCom*, the user enters "CONNECT" and then types commands directly to the modem to initiate auto-dialing, if supported by the modem being used. Otherwise, the user dials the number and, upon hearing the modem signal, types "CONNECT" and hangs up the phone.

A recent inquiry to Solution Software revealed that Version 2 (which is nearly completed) will provide this ability through the use of a simple programming language designed by them and referred to as "CommSpeak." In addition to CommSpeak, Version 2 will also provide better file handling, server operations with *Kermit*, the ability to execute DOS commands from within *VersaCom*, a larger capture buffer (up to 64K), and a smaller load image.

So how 'bout it, Bunky? Have you seen and heard enough? Should I have bored you with all the technical details and confused you with computereze, or don't you agree that *VersaCom* is a solution you can live with?

(Solution Software, 3421 N. 1st Ave., #120, Tucson, AZ 85719, 602-323-0841, \$35 plus \$5 S/H, credit cards not accepted)

— G.L. Swearingen

## Software review

### Robounce — Once Again, A Call To Arms

Arm yourselves Earthlings and other Sanyo enthusiasts! Once again you will be called upon to defend Earth from another horde of invading aliens.

Complete with Mothership, Yellow Gremlins, Blue Martians, and Pink Blobs, MichTron's inter-galactic adventure, *Robounce*, can be both challenging and fun for all ages.

As you progress through each successive wave, the degree of difficulty increases. In the first wave, you'll do battle with the Gremlins; in the second the Martians; and the third, you'll come face to face with the Pink Blobs.

If you're good enough and survive the first three waves, the aliens will combine forces in the fourth and fifth waves in order to defeat you.

With each wave, the Mothership will descend ever closer to your defenders, and with each move down, she narrows the playing arena, increasing the rebounding speed of the aliens.

Should you get to the sixth wave, a new twist is added.

## BEAT THE TAXMAN WITH YOUR OWN REVENUE ENHANCER

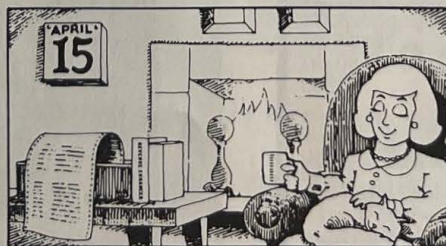
Cruise through tax season — this year and every year! Personal Revenue Enhancer Program (PREP) is the easy way to stay on top of financial records. No more shuffling through last year's checks and receipts. Imagine pressing one button for all the numbers you need to fill out that 1040. Why sweat it year after year, when you take it easy having done the best you can? PREP is the best tool you can get for ongoing peace of mind.

### PREP does a job all year round.

It feels good when you know where the money's going. PREP can quickly compare spending patterns in any selected category from month to month, year-to-date, etc. PREP balances your checkbook, reconciles bank statements, and monitors all expenses, income, and tax info — in as great or as little detail as you like.



Before PREP



After PREP cruise through the tax season.

**PREP**  
PERSONAL REVENUE ENHANCER PROGRAM

Quality Software from U.S. Digital

### Do it your way

A major problem with most home accounting programs is that once set up, it's nearly impossible to make changes. Yet most of us change our minds and have our own way of doing things. PREP lets you easily change anything you want, like a balance that's off by two-cents.

### Some Highlights of Revenue Enhancer:

- ✓ Menu-driven (using Sanyo 550/555 graphics)
- ✓ Extremely easy to use and follow
- ✓ Totally flexible — easy to change anything
- ✓ Up to 250 expense/income categories
- ✓ Prints a variety of selected reports
- ✓ Runs in color or B&W automatically
- ✓ Handles checking, credit, & cash transactions
- ✓ Easygoing manual includes an income tax section

Pays for itself  
many times over ..... only \$59.95

**U.S. DIGITAL**

U.S. Digital Corporation • 5687-H S.E. International Way • Portland, Oregon 97222 • (503) 654-0668 • Telex 888521



The combined enemy forces will try to drop bombs on you. The seventh wave is a repeat of the sixth, only quicker. If there is an eighth wave, it is undocumented and, to date, I'm not sure if anyone has ever gotten through the seventh.

MichTron has proven itself to be a real leader in marketing software specifically designed for the Sanyo 550/555. However, this time I feel that they were a bit lax in their packaging of *Robounce*. Within the documentation, MichTron states, "Because of the fast, competitive nature of this game, we highly recommend that you use a joystick".

Unfortunately, most of us never see the documentation for a product until after we purchase it. It can be very disappointing to get a game home, only to realize that before you can truly enjoy it you must invest another \$30 in a joystick.

Unlike the other games with dual control marketed by MichTron, the keyboard control of *Robounce* is truly awful. In addition to the cursor controls, the documentation states, "simply press any key and the game will start." The package I received to review didn't wait for any key to be pressed. After entering *Robounce* at the DOS prompt, the game loaded, the screen garbaged over and went into the demo mode. After a few seconds the screen garbaged again and then the game began with the first wave. After attaching the joystick, it went into the demo mode and waited patiently for me to press the fire button before starting.

Prior to getting the joystick, I recruited several kids (ages 7 to 15) from the neighborhood to help in my evaluation of *Robounce*. Each felt that the keyboard responses were too slow and appreciated the game much better after I attached the joystick. Although some of them were quite

good at playing *Robounce*, they never got past the seventh wave. The highest score recorded was 1,480 and I'm sure someone out there has topped it by now.

There are three function keys defined for game control:

- PF1 will start the game and allow the player to reset a game that is already in progress.
- PF2 will pause a game in progress; pressing it again will cause the game to resume.
- PF3 will toggle the sound on or off.

The graphics, although childlike in appearance, are adequate and the sound effects are as good as it gets with the limited sound capabilities of the Sanyo 550/555. As for the joystick, if you're really into games you will probably already have one.

If it sounds like I'm somewhat less than excited about this game, then my tone has rung clearly. There are a few too many deficiencies in *Robounce* to recommend it very enthusiastically.

(MichTron, 576 S. Telegraph Rd., Pontiac, MI 48053, 313-334-5700, \$24.95)

—G.L. Swearingen

## SYNERGISTIC SOFTWARE

* MAGIC WINDOWS - A resident utility which allows convenient utilities to be run while using any program. Utilities include a calculator, notepad, ASCII table, phone book, and more. Requires 192K minimum memory. \$34.95	* GRAPHICS TOOLBOX - Allows point plotting, line drawing, boxes, circles, area fill, and more. Routines are callable from Turbo Pascal, MicroSoft Pascal & FORTRAN, Lattice & Desmet C, C86, and assembly. \$24.95
* SYNERSOUND - Add real sound to your SANYO. Great for games since this sound can work in background mode. Callable from Basic, Turbo Pascal, and Microsoft Pascal and FORTRAN. \$34.95	* PERSONAL TOOLBOX - A package of 3 popular programs. A financial package providing amortization, present value, future value, and more. Also an appointment calendar and phone book for access to dates and phone numbers. \$24.95
* COMEDIT - This installable routine overrides the DOS command editor and allows better editing and also allows you to recall your past 10 commands. Requires DOS 2.0 \$34.95	* BANNER TOOLBOX - A collection of the best banner programs. Allows for many different banner styles and is usable with any printer. \$24.95
* LOTUS BOARD SCREEN DUMP - This is the familiar screen dump utility with the added twist that it works with the LOTUS BOARD. Works with Epson and Gemini printers. \$34.95	* UTILITY TOOLBOX - A collection of DOS utilities including a file dumper, pattern searcher, WordStar converter and more. \$24.95
* INSTADISK - Fast RAM-DISK driver for the SANYO. Great for use with disk intensive programs such as WORDSTAR. Requires DOS 2.0 \$19.95	* PROGRAMMERS TOOLBOX - Actually writes C programs for you. Useful in creating compilers, user interfaces, adventure games and more. Requires a C compiler for use. \$39.95
* PRINTSET - Menu driven program which allows the user to set the characteristics of an EPSON, Gemini or compatible printer. \$17.95	SYNERGISTIC SOFTWARE 1593 Valley Parkway Lewisville, TX 75067 Add \$3 Shipping & Hand. Texas Residents add 5% sales tax. Dealer Inquiries Invited



## SuperTax — Getting Ready For April 15<sup>th</sup>

I have long been curious about computer tax programs such as Rockware Data's *SuperTax*. It has now been translated to the Sanyo 550/555 series computer by Trans—San Industries, a company name which makes clear its role as translator, under license from Rockware. Consequently, I welcomed the opportunity to review such a program. For the record, I should mention that I have seen two other such programs: a TRS-80 program from CLOAD (now defunct) which was superb for the money (whole cassette, transferable to disk, with other programs, all for under \$5), and a review copy of a program submitted to SOFT SECTOR which I suggested might be too poor in quality to deserve a review! Hence, I have seen what is close to both ends of the spectrum. I mention this because all judgements people make deal not only with "Does it get the job done?" but are also in relation to what else is available, which is to say, by comparison.

The version that I reviewed was a beta test copy sent to SOFT SECTOR. It contained the programs for individuals;

these are primarily for filling out Form 1040, but also for some of the major supporting schedules, such as 'A' for itemized deductions. It contained *SuperTax1*, the core program for tax planning and preparation, and *SuperTax3*, which is described as the business schedule program for those individuals with unincorporated businesses. *SuperTax2*, the tax return printing program, was not available at review time due to the need for incorporating last minute additions or changes in the 1984 tax law. Registered owners are to receive this update automatically when it becomes available. Updates for year-to-next, however, are not free and cost about half the price of the entire package. In any event, this review pertains only to 1984 *SuperTax1*, the most important part of the package anyway. A professional tax preparer's version should soon be available as well.

The package you receive consists of a program diskette with a manual of about 30 pages, plus some worksheets to allow you to plan what you input. The manual instructs you to transfer the files to a system disk which you create so as to be a self-booting disk (via an AUTOEXEC.BAT file). While I personally like this idea, unfortunately, it won't work if you have single-sided drives. In fact, even with a A-OK DOS, which allows me 180K (instead of 160K) per disk, I still could not create the disk to contain MS-DOS 1.25, BASIC, and all the *SuperTax* programs. You will either have to leave off the tax computation program, COMP.BAS, or else modify the program on Line 2270 to allow accessing a second drive (if you have one), or more likely, forget the automatic loading system disk, as attractive as it sounds — unless you have a double-sided drive.

I should add that initially there was some confusion about which computer is which in the Sanyo series. There is a file called READ.ME on the disk which summarizes how to transfer files to create a working disk. It confuses the Sanyo 550 with the 555-1 (or just 555). A single disk system is a 550, not a 555-1. The '1' or '2' designation refers to single- or double-sided drives, not the number of drives. However, the manual does contain the correct information.

Despite this minor setback, I proceeded to experiment with the program. It features some nice, basic graphics effects and a menu system for easy entry. The programs are in BASIC. Either you or the automatic batch file loads MENU (or MENU.BAS) and the rest is fairly easy and automatic. I found the manual almost unnecessary to use, as I chose to create a data file of tax information for 1984. The program does not seem to have any facility for calculating in case you have multiple sources of income; for example, having four part-time writing jobs, each with its own W-2 or 1099. These will have to be computed in advance on the worksheets or elsewhere. While most tax programs do not contain this information either, I wish they would.

As I entered data, I felt that the computer was not really being utilized as much more than a scratch pad. On the other hand, on subsequent uses, with the file already created, I did experience some delight at having all the data available for easy summary, printing or modification. This made it clear to me as to who should buy this program and who shouldn't — more in a moment. In doing all this, you discover that you can print to the screen or the printer. Unfortunately, in at least one instance, the computer will lock up if your printer is not ready. You



PERIPHERAL  
PRODUCTS  
DISTRIBUTING

- **RS-232** interface for the MBC-550 at an unbeatable price. Top quality with full warranty. \$49.00
- **MEMORY** chips for your Sanyo.  
150ns 4164 chips.  
Set of 8 (64k) 35.00  
Set of 16 (128k) 65.00  
Price each for 17 or more chips 3.95
- **NEW!** Battery backed-up real time clock for the MBC-550 series. Keep the correct date and time when the power is off. Not affected by disk I/O like the internal clock is. Includes software. 95.00
- **HARD DISK DRIVES.** Just the bare drives.  
Shugart 712 - 10 meg half-height 695.00  
Seagate 412 - 10 meg full-height 695.00  
Seagate 425 - 20 meg full-height 895.00

Why should you buy from us?

- Same day shipping (when order rcvd by 2:00 mst)
- Free shipping via UPS ground
- No additional charge for MC, VISA or COD orders
- Overnight and 2 day air services available

PERIPHERAL PRODUCTS  
DISTRIBUTING  
P.O. BOX 11986  
TUCSON, ARIZONA 85734

(602) 881-4280

Allow 18 days for  
personal checks  
AZ residents add 7% tax



might have to turn on your printer even if you don't want a printout, or else reboot your system. This happened to me at one point when I chose, from the menu, "Summary of Return." If there were more instructions on this point, I must have missed them amidst the sea of rehashed tax information. The program and manual, though good, would be better with more on the use of the program and less on "how to do your taxes" type information. Quality-wise, despite this last suggestion, the manual was pretty good, although it contained several typos and misspellings; an entry in the table of contents was on a different page than indicated; there was an incorrect Sanyo editing instruction for listing (use the PF3 key and hit RETURN, not the PF3 key plus a space, as the manual has). These, however, are only minor detractions.

As for the performance of the software, I experienced the problem of the computer going crazy when it didn't find one of the programs which I could not fit on the disk. Several times this happened; other times, there was a graceful recovery which did show evidence of good error-checking, so the record is mixed on this. There are beeps to warn you of input errors and the like, but I personally found them more annoying than helpful.

You can review your data easily, I should emphasize, but you cannot modify it during this review process. Modifying is a separate process. In going over my return for possible modification, I would have liked to be able to hit RETURN for numeric data if I wished to keep the same values. This is because the Sanyo, unlike a TRS-80, for instance, treats inputs with a reply of RETURN as indicating zero, rather than as a default of last value used. I would have liked to see a routine to allow this. It would mean more work, but I think a nice thing to have.

The program makes a nice printout of your results on either your screen or your printer. The tax computed for the estimated data I used checked with what the new tax tables show. However, the program does not include built-in sales tax tables for those of us who itemize.

The real question remains: Who should use this program? In reviewing it, I find myself very ambivalent. On the one hand, if you have a certain amount of tax planning to do and your situation can change from month to month, it can be quite useful to recall previous data for review and modification. Likewise, I would expect the professional tax-preparer's version to be a great boon. On the other hand, if you are just filling out your taxes and are an average person (whatever that means!), then I think \$100 is a bit high to pay if you are not a well-to-do hobbyist or user. You should also bear in mind the question of system configuration (number of sides per drive, number of drives; also note that the program says you need 192K) to determine how well the program will function with your equipment. *SuperTax* has the potential to be useful for those with the need and the proper equipment to get their money's worth out of the purchase. In sum, *SuperTax* can be a curiosity-toy-fascination for a while, but whether or not you buy it should depend on its utility to you.

(Trans-San Industries, P.O. Box 2167, 1761 Edmund St., Simi Valley, CA 93062-2167, 805-526-1860 after 6 p.m. Pacific time, \$99 plus \$3 S/H for individual version, \$149 plus \$3 S/H for professional version; requires 192K)

— Michael Ecker

## Software review

# *Knobelspiel Generahl — Europe's Popular Dice Game For The Sanyo*

Dice games have long been popular throughout the world and Wolfsangel Enterprises of Hatfield, Penn., has made one of Europe's most popular dice games, called *Knobelspiel Generahl*, available to Sanyo users. The program makes nice use of the Sanyo's BASIC graphics commands and comes with a full set of instructions, an ASCII version of the file to make changes and transportation of the program easier, and a well-written set of documentation. Also included on the disk is a demo program which uses a lot of the routines in *Knobelspiel* and several others to further demonstrate your Sanyo's graphics capabilities.

The program is designed for one to four players and is similar in some respects to Yahtzee, a game already familiar to many of us. I was disappointed that the program was sensitive to upper/lowercase input and found that lowercase input was required, even though uppercase letters were displayed on the screen. This bug should have been eliminated to accept either type of input from a player.

Because this is a BASIC program, its graphics are not, by any stretch of the imagination, as good as those of an assembly language program. Although it does offer young users the chance to exercise some basic math skills, it leaves quite a bit to be desired as far as holding my interest (and that of my 8 and 11-year-old children).

I am not a big proponent of computer versions of amusing games which do not fully utilize the capabilities of the machine on which they run. Although the author of this program did spend some time on the Sanyo's graphics, the documentation and demo files, the total package falls short of the caliber I have come to expect in a state-of-the-art program for a machine with the capabilities of the MBC-550/555.

To be completely fair, I'd have to admit that I am not a big proponent of games such as this anyway and so my perceptions would, of course, be colored by that fact. If you're really into dice games and the like, this may be the game for you. And after all, the price is quite low.

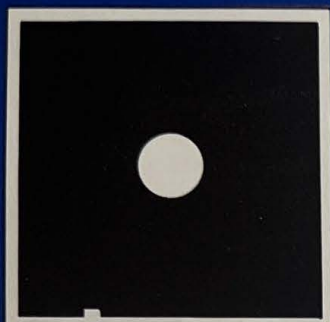
(Wolfsangel Enterprises, Y3-3 Hatfield Village, Hatfield, PA 19440, 215-362-8875, \$19.95)

— Bill Chang

## REVIEWS REVIEWS



# SOFT TALK



**IN TRANSIT** is *Envoy*, a fully menu-driven telecommunications program just released by Artisoft, Inc. This program provides access to data net-

*These products are currently available for the Sanyo 550 series of computers and will be reviewed in a future issue of SOFT SECTOR.*

works, local electronic bulletin board systems and other micro, mini and mainframe systems.

In addition, *Envoy* features easy to use menus, terminal mode with large data capture buffer, autodial and autologin capabilities, *XMODEM* and *ANSI X3.28* file transfer protocols, error free transfer of text and binary files, and requires less than 9K of disk space. The program's utilities menu lets the user erase, type, copy, rename and print files with a single keystroke. It also allows the display, creation and removal of subdirectories.

*Envoy* is currently available for \$49.95 from Artisoft, Inc., 2450 E. Speedway #4, Tucson, AZ 85719; (602) 327-4305.

\*\*\*

**EASY AS ABC.** A new program, *TERM 123* has been released by Level IV Products, Inc. This program is fully interrupt driven, supports 300 and 1200 Baud communication rates, has ASCII up/download functions, five pre-defined function keys, five user-definable function keys and its utility functions will save your terminal configurations and function key assignments to disk files for later recall.

*TERM 123* is a full-featured, smart terminal emulation package for all Sanyo 550 series, 16-bit computer systems. It is fully prompted on the screen and is written for both new and experienced users.

*TERM 123* is currently available for \$79.95 from Level IV Products, Inc.,

28194 Schoolcraft Rd., Livonia MI 48150; (313) 525-6200.

\*\*\*

**ON ANOTHER LEVEL** is *Grafik*, a Sanyo graphics program generator that creates full screen graphics programs and at the same time generates full BASIC code that can be saved to disc for use at a later time. Drawing can be accomplished with arrow keys or a joystick.

*Grafik* allows you to generate professional looking graphics with simple commands to draw lines, boxes, circles, ovals and to paint them as you wish. Text may also be mixed with your graphics. Your graphic creation is automatically saved to disk and may be edited or added to at a later date.

*Grafik* comes in two separate versions, one for keyboard control and one for joystick control. Both are currently available for \$49.95 each from Level IV Products, Inc., 28194 Schoolcraft Rd., Livonia, MI 48150; (313) 525-6200.

\*\*\*

**TAXTEMP**, a tax template from I TH, Inc., is available just in time to help you utilize your Sanyo for tax preparation. *Taxtemp* works with *CalcStar* and contains Forms 1040, 1040A, 1040EZ, Schedules A, B, C, E, G, SE, 2441, 2106, 3903, 4562 and tax tables X, Y and Z. These templates are not integrated and operate separately by loading each template, hitting CONTROL-A and inserting data where the cursor stops.

## CHRYSON COMPUTER

### HARDWARE/PERIPHERALS

SANYO MBC-775, color portable (see 12/84 SOFT SECTOR review or write for details) .....	\$2145.00
VIDEO RAM BOARD (Lotus Board) Run LOTUS, Flight Simulator and many more .....	\$175.00
VOLKSMODEM (SOFT SECTOR review 10/84) .....	\$59.95
SIGNALMAN MARK VII .....	\$109.95
MARK XII .....	\$259.95
SANYO TELECOMMUNICATIONS SOFTWARE PACKAGE .....	\$82.95
MI-TERM by MichTron .....	\$67.95
MBC-RS232C Serial Board .....	\$75.00

### PRINTERS/MONITORS

PANASONIC, KXP-1090 .....	\$269.95
KXP-1091 .....	\$349.95
4K BUFFER for KXP series .....	\$64.00
PANASONIC, 1300-D monitor, 13", RGB/Composite modes (see SOFT SECTOR review in 9/84 issue) .....	\$359.00
NEC, JC1460 model, color monitor, 14", Hi-Res .....	\$359.00
SANYO CRT-36 monitor .....	\$174.95

### SPECIAL VALUES

SURGE PROTECTORS, all the following are backed by a LIFETIME PERFORMANCE GUARANTEE FROM LLOYDS OF LONDON!	
LEMON™, 6 outlet direct wall plug-in .....	\$41.95
LIME™, as above but with a 6-foot power cord and 15AMP breaker/on-off switch .....	\$67.95
ORANGE™, same as LIME but also adds EMI-RFI filtering protection .....	
SUG. RETAIL WAS \$139.95	
NOW-YOUR COST .....	\$79.95
TLS, Total Learning Systems training software packages for SANYO MS-DOS and TLS TUTOR for WORDSTAR	
TLS, diskette software teaches SANYO MS-DOS quickly and simply by on-screen tutorial .....	\$33.95
TLS TUTOR for WORDSTAR lets you use actual WORDSTAR diskettes while guiding you through each process by an audio cassette based tutorial .....	\$25.00
SANYO BONUS PACK, both TLS and TLS TUTOR for WORDSTAR in a combination package .....	\$33.95
TLS TUTOR for CALCSTAR and INFOTAR (\$60.00 value) .....	\$25.00
(Be sure to specify which DOS version in use when ordering.)	
MICHTRON SOFTWARE .....	15% off list

### \*\*\*\* DISKETTES\*\*\*\*

BRAND	SS/DD	DS/DD
3M	23.95	29.95
MAXELL	22.95	27.95
SENTINEL*	22.95	27..95
CDC**	18.95	21.95

\*SENTINEL are available in boxes of mixed colors, or all red, blue, yellow green or black — specify when ordering.

\*\*CDC diskettes are premium quality and are supplied in boxes of 12.

### ACCESSORIES/MISCELLANEOUS

KEYBOARD COVER, HARD PLASTIC, SEE-THROUGH .....	\$9.95
COMPUERVE STARTER KIT, includes FIVE FREE HOURS of connect time, manual, 3-ring binder, User ID .....	\$32.95
FLIP-N-FILE 25 .....	\$18.95
Prices subject to change without notice. Supply limited on same items.	

(Hardware, Printer, Monitor prices include extra charges for weight and insurance)

MASTERCARD/VISA WELCOME — NO ADDITIONAL COST  
SHIPPING/HANDLING — \$3.00 per order

CHRYSON COMPUTER

109 Lisa Drive

Brockton, Mass. 02402

(617) 587-4639



After the data is inserted, the computer will automatically recalculate each tax form and intermediate results can be obtained by hitting PF1 to display the command prompt and recalculate it all.

Utilization of these tax templates will aid you in the preparation of your tax returns by allowing you to perform complex mathematical calculations and will save you time in preparing forms. It will eliminate mathematical errors, will allow you to calculate a variety of tax alternatives from which you can reduce your tax obligation, will allow you to incorporate any changes such as overlooked deductions that may result in increased benefits for you, and will help you to analyze various financial decisions that you must make throughout the year.

*Taxtemp* is currently available for \$29.95 with a 30-day, money back guarantee from I TH, Inc., Suite 411, 7700 Leesburg Pike, Falls Church, VA 22043; (703) 442-8330.

\*\*\*

**SUMMING IT UP** is RJL Systems with two new software products — *The Itemized Calculator* and *The Disk Calculator*.

*The Itemized Calculator* is a multi-purpose system that can be used to create and maintain shopping lists, price quotations, revenue and expense lists, stock portfolio lists, inventory lists, sales lists or any list that requires descriptions, quantities, prices, price extensions and totals.

*The Disk Calculator* is a software

product that operates like a desk-top calculator. It can perform all of the commonly used functions of a business calculator, as well as performing future value (compound interest) and present value (discounted cash) computations.

*The Itemized Calculator* is currently available for \$39 and *The Disk Calculator* is available for \$29. Both may be obtained from RJL Systems, 106 New Haven Avenue, Milford, CT 06460; (203) 878-0376.

\*\*\*

**TAX PREPARATION.** This home accounting program is designed to minimize the hassle of keeping track of all expenses and income for taxpayers and budgeters. The *Personal Revenue Enhancer Program (PREP)* is completely menu driven and can handle up to 250 expense categories which you define.

*PREP* makes use of the Sanyo 550/555's graphics capabilities while it helps you to balance your checkbook, reconcile your bank statements and monitor all expenses, income and tax information in as great or as little detail as you like.

*The Personal Revenue Enhancer Program (PREP)* is currently available for \$59.95 from U.S. Digital Corporation, 3687-H.S.E. International Way, Portland, OR 97222; (503) 654-0668.

\*\*\*

**A WEALTH OF INFORMATION.** A newly formed users' group in Canada

has announced its intention to form a software exchange library to promote users programs being distributed among members of the group.

Additional product reviews and hardware advice will be published regularly to assist users in purchases and additional capabilities for their machines.

For further information about becoming a member of this users' group or about the software exchange library, contact: Sanyo Canadian Users Group, Eric Lillius, Box 210 Mountain Street, Haliburton, Ontario K0M 1S0 Canada; (705) 457-2774.

\*\*\*

**FAMILY PLANNING.** A new comprehensive home finance budgeting tool from Pritchard Software is designed to help you keep your bills paid on time, to make wise investments and to keep your family on your own personalized budget.

*The Home Expense Manager* keeps track of all your income and expenses. Based on your personal criteria, it will tell you how much you should put into your savings account, invest into a stock plan, or even set aside today the amount you would need for a car insurance payment due months from now.

*The Home Expense Manager* requires 128K and a printer and is currently available for \$29.95 from Pritchard Software, 6316 Windham Place, Grand Blanc, MI 48439; (313) 695-3259



## BINARY TREE TECHNOLOGY

(513) 879-4214 18 South Broad, FAIRBORN, OHIO 45324

### COMPUTERS

MBC 550-2 (1 360K) .....CALL  
MBC 550-2 (2 360K) .....CALL

**WE NEED ORIGINAL SOFTWARE**

**IF YOU HAVE A PROGRAM**

**WORTH MARKETING CALL**

### ACCESSORIES

180K DRIVE .....\$119  
360K DRIVE .....169  
800K DRIVE .....CALL  
8087 APU CHIP .....CALL  
A,B,C,D,Drive Cable .....CALL  
RS-232 + MODEM SOFTWARE 99  
RS-232 .....59  
64K MEMORY (150NS) .....49  
128K MEMORY (150NS) .....99  
JOYSTICK .....29  
550 COMPUTER COVER .....19  
6' KEYBOARD CABLE .....18  
PRINTER CABLE .....24  
RGB CABLE .....20  
AUTO DIAL/ANSW MODEM 149  
330 BAUD MODEM .....65  
DUAL JOYSTICK ADAPTER .....15

### PRINTERS

POWERTYPE (18 CPS LQ) ....\$39  
BLUECHIP 120CPS .....199  
RITEMAN 120CPS .....269  
GEMINI 10X .....249

### SOFTWARE FOR SANYO

8088 ASSEMBLER TUTORIAL \$39  
SANYO BASIC TUTORIAL .....49  
MS DOS TUTORIAL .....39  
BINARY TREE FORTH .....99  
BIORHYTHM .....19  
ASYNC (MODEM S/W) .....49  
ADVENTURE 1 (128K) .....29  
MAIL LIST HANDLER .....39  
SCREEN DUMP .....39  
CP/M EMULATOR .....80  
GRAPHICS PACKAGE .....69  
COPYLINK .....80  
PASCAL COMPILER .....45  
FORTRAN 87 .....299  
DATA MANAGER .....39  
CAVES OF CARACORROS .....29  
SEARCH FOR SHARDS .....19

**DEALER & DISTRIBUTOR INQUIRIES INVITED**

Please send cashier check or money order. Personal or company check, allow bank clearance. Visa/MC add 3%. Shipping and handling 3%. Restocking fee for all returned merchandise.



# Taking A Swipe At Ambiguity

AROUSE YOUR DAISY WHEEL  
TO BACK UP AND  
STRIKE A BLOW FOR CLARITY

---

By Danny Humphress  
Soft Sector Technical Editor

---

**F**or accuracy and clarity, program listings that appear in **SOFT SECTOR** are printed directly from a Sanyo MBC-555 computer and a Sanyo PR-5500 daisy wheel printer. By printing programs this way, as opposed to transcribing the listing with a typesetter, the possibility for printing mistakes is eliminated.

It soon became apparent that, even though the quality of the daisy wheel print was exceptional, it was difficult to distinguish the number zero from the letter 'O'. This made it difficult for readers, especially those new to BASIC, to correctly key in program listings from the magazine.

Traditionally, zeros are distinguished with a slash through the number, but this is not the norm on daisy wheel printers. We needed a program that would list BASIC programs and automatically backspace and put a slash through each zero. We also wanted to be able to print exactly 80 characters per line to match the width of the video display. Pauses for paper changes were added to allow us to use sheet paper. The program listed here was born from these needs.

If you have a Sanyo PR-5500 or 5000 printer, the program will run without modification. For other printers, you may need to change the print codes to the ones proper for your printer. The `CHR$(8)` in Line 120 of the program is the proper backspace code for most printers, but if you have problems, refer to your printer manual for the correct one.

For our listings, we use a special clay coated, 8½- by 14-inch paper. Because of the paper length, the line count in program Line 160 is set for 70, causing the program to print this number of lines before pausing for a paper change. For shorter paper, change this value to 54 or whatever will fit nicely on the size of paper that you use. If you would like to remove the paper change feature completely, delete lines 150 to 190 and change Line 140 to read `140 LPRINT`.

The program that you're printing must be saved in ASCII format. In fact, any ASCII file may be printed with this program if you desire the zeros to be slashed. To save a BASIC program in ASCII, load the program into BASIC with the `LOAD` command and save it with a ",A" (don't forget the comma) after the program name, such as `SAVE "filename",A`. This stores the program on the disk in a format that is readable by the *Lister* program.

The program is a simple one that shouldn't cause anyone problems. However, if you have trouble finding the proper codes or would like some particular feature introduced into the program that you can't figure out, send a Xerox copy of the code page from your printer manual to us here at **SOFT SECTOR** and we will try to help you out.





The listing: LISTER.BAS

```
10 CLS:WIDTH 255:LINECOUNT=0
20 LINE INPUT"File to print: ";FS$
30 PRINT
40 LPRINT "Listing of ";FS$:LPRINT
50 OPEN "I",1,FS$
60 LINE INPUT #1,A$
70 PRINT A$
80 B$=A$
90 IF LEN(B$)>80 THEN B$=LEFT$(B$,80)
100 FOR J=1 TO LEN(B$)
110   LPRINT MID$(B$,J,1);
120   IF MID$(B$,J,1)="0" THEN LPRINT CHR$(8);"/";
130 NEXT J
140 LPRINT:LINECOUNT=LINECOUNT+1
150 A$=RIGHT$(A$,LEN(A$)-LEN(B$))
160 IF LINECOUNT<70 THEN 200
170 PRINT:PRINT"Insert new sheet of paper. Strike any key to continue."
180 K$=INPUT$(1):PRINT
190 LINECOUNT=0
200 IF LEN(A$)>0 THEN 80
210 IF NOT(EOF(1)) THEN 60
220 CLOSE
```



## SOFT SECTOR

### Back Issue Availability

Back copies of many issues of SOFT SECTOR are still available.

All back issues sell for the single issue cover price. In addition, there is a \$1.25\* charge for the first ordered issue, and 50 cents for each additional issue, within the U.S., Canada and Mexico for postage and handling by United Parcel Service. UPS will not deliver to a post office box or to another country.

VISA, MasterCard and American Express accepted. Kentucky residents please add five percent state sales tax. We do not bill and no C.O.D. orders accepted.

We suggest you order back issues you want now while supplies last.

To order, just fill out the form on the next page and mail it with your payment to:

9529 U.S. Highway 42  
P.O. Box 385  
Prospect, KY 40059



☐ Please send me the following back issues:

(Payment must accompany back issue orders.)

NO.	MON.	YR.		PRICE
1	AUG.	'84	PREMIER ISSUE	\$3.00 <input type="checkbox"/>
2	SEP.	'84	(OUT OF STOCK)	\$3.00 <input type="checkbox"/>
3	OCT.	'84	(OUT OF STOCK)	\$3.00 <input type="checkbox"/>
4	NOV.	'84	(OUT OF STOCK)	\$3.00 <input type="checkbox"/>
5	DEC.	'84		\$3.00 <input type="checkbox"/>
6	JAN.	'85		\$3.00 <input type="checkbox"/>
7	FEB.	'85		\$3.00 <input type="checkbox"/>

TOTAL \_\_\_\_\_  
SHIPPING & HANDLING\* \_\_\_\_\_  
KY RESIDENTS ONLY  
ADD 5% \_\_\_\_\_  
TOTAL AMOUNT  
ENCLOSED \_\_\_\_\_

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

☐ VISA ☐ MC ☐ AE CARD # \_\_\_\_\_

SIGNATURE \_\_\_\_\_

EXPIRATION DATE \_\_\_\_\_ PHONE # \_\_\_\_\_



Continued from Page 6

the way *WordStar* does a partial screen write and allows the program to take advantage of the built-in line editing in the Sanyo BIOS.

The author of the article is Richard Kruse. (From the "Letters to the Editor," January '85.)

John N. Logreco  
Los Angeles, CA

**Editor's Note:** To all who have written in asking about Mr. Kruse's patch, it was published in the November '84 issue of *Microcomputing*. Although we published a few corrections to the patch that appeared in the article, we are not able to reprint the entire patch. However, after you get a glance at *WizStar*, in this issue of *SOFT SECTOR*, you won't be disappointed for a moment.

### TURBOCHARGER

Editor:

I have been using the INTEL 8087 math co-processor chip in my Sanyo 550 for more than six months without problems. The chip was purchased by mail order and I installed it myself, simply plugging it into the labeled socket on the Sanyo mother board. The primary use of my Sanyo is for scientific calculations, and here a large advantage in both speed and accuracy is realized when software which supports this 80-bit, number-crunching chip is used.

For example, the simple floating point test of repeatedly taking the square, square root, logarithm and exponent of a series of numbers (using Turbo Pascal with and without 8087 support), shows more than a 60-fold speed advantage for the 8087 chip. Furthermore, a substantial increase in accuracy with virtually no accumulation of round-off errors is realized.

For applications where speed and accuracy in floating point calculations are important, the addition of an 8087 math co-processor chip provides an inexpensive way for a Sanyo 550 to take a large step toward minicomputer performance.

```
program float_test;
var x: real;
    i: integer;
begin
  writeln('***begin***',chr(7));
  x := 0.0;
  for i := 1 to 2500 do
    begin
      x := x + 1.0;
      x := exp(ln(sqrt(sqr(x))))
    end;
  writeln(chr(7));
  writeln(1st,'x = ',x);
end.
```

Result

x = 2.500000000000004E+003  
5 seconds with the 8087  
x = 2.4999999547E+03  
5.5 minutes without the 8087

Paul M. Holland, Ph.D.  
Fairfield, OH

### FLIGHTS OF FANTASY

Editor:

I have purchased the new Video RAM Board for my Sanyo with the understanding that many of the programs written for the IBM PC would run. Such things as *Lotus 1-2-3* run very well, but many of the game programs written for the IBM PC still will not boot. For instance, *Zaxxon*, *Flight Simulator*, and *King's Quest*. Almost any self-booting game written for IBM PC DOS will not load into my Sanyo. Will this be fixed. Will the selfbooting IBM PC programs ever be able to run on my Sanyo?

Fr. William M. Kuba  
Bradford, PA

**Editor's Note:** As we reported last month in this column, a keyboard patch, written by Tim Purves, is being made available by Sanyo which allows *Flight Simulator* to run on the 550/555 with the Video RAM Board installed. Instead of the formatted disk and \$5, however, Sanyo now says they would prefer to receive \$10 and no disk for the patch. Also, we understand that it is now being included on the RAM Board system disk.

The other self-booting games will probably always cause problems. We have not tried them and have no further information.

### BROWSING THE BOOKSHELF

Editor:

On Page 40, "Book Review" (September '84), *WordStar Made Easy* appears to be a perfect solution to an easy method to learn *WordStar*. Please advise us as to where to purchase this book.

We are dealers in the telecommunications field and are about to enter the computer field. We will feature the Sanyo MBC-550 series. I am certain that your publication will be most helpful.

Ted Abrams  
Los Angeles, CA

**Editor's Note:** The information as we have it is *WordStar Made Easy*, by Walter A. Ettlin, 1982, Osborne/McGraw-Hill, 2600 10th St., Berkeley, CA 94710.

### REVIEWING REVIEWS

Editor:


This letter will concern itself with the review of *Knobelspiel Generahl* which was sent to Wolfsangel Enterprises by *SOFT SECTOR*. Since the review was by no means a good one, of course we have to respond.

To begin with, we were severely disappointed with the short length and short shrift given our software by the reviewer. He did not hesitate to point out every fault he found, however minor, yet totally skipped over many of the programs better features. Judging by the normal sugary reviews which appear in *SOFT SECTOR* for games which are more expensive and less detailed, all we can say here is that the disappointment is great.

Let us start with the reviewer's first comment. He mentions that the program makes "nice use of Sanyo BASIC's graphics commands and comes with a full set of instructions, an ASCII version of the file to make changes and transportation of the program easier and a well-written set of documentation. Also included on the disk is a demo program which uses a lot of routines in *Knobelspiel* and several others to further demonstrate your Sanyo's graphics capabilities."

Also on our disk is an *EasyWriter* file of our five-page instruction booklet so that home users can make extra copies of the documentation. The fact that all of these

Continued on Page 92



## Doom-Quest

Tired of text adventures? This colorful graphic adventure contains over 60 slides of hi-res graphics! Can you defeat the evil gork? Use your wits to travel through the adventure and recover the gems! Fast moving entertainment for the entire family. Double-sided drive required. **\$44.95**

**MIGRAPH**  
SOFTWARE

1-800-55GRAPH  
206-839-6811

Call today for our complete line of Sanyo Products

Send cashiers check, money order, personal company checks allow 3 weeks bank clearance. VISA/Master Card accepted. Provide phone number with order. Prices are for cash. VISA and Master Card add 3% intruction.



## DS-DOS PLUS 2.11

### by Tim Purves

80 track drives, 10 sector formats, 512K memory, and IBM graphics are only a few of the exciting features exclusively in DS-DOS PLUS 2.11. This MS-DOS upgrade is specifically designed to support 80 track drives on your Sanyo. In addition, it allows for 10 sector formats on both 40 and 80 track drives (single or double sided). And that's not all; not only does DS-DOS support the new SANYO VIDEO RAM BOARD, but makes switching between normal graphics mode and IBM graphics a breeze. A single DOS command toggles between the two modes instantly. And for versatility, DS-DOS is unsurpassed; it can control any combination of 40 and 80 track drives, read or write 8, 9, and 10 sector formats on 40 track drives, handle up to 512K memory, and even remember the date on reset. An extra 11 utilities help you use your system better, and include new DISKCOPY and FORMAT routines, rewritten to be super-fast and super-friendly through menu-driven operation. Don't settle for a DOS that's just "OK." Take a closer look at DS-DOS 2.11: the one that set the standard time and time again.

**Requires MS-DOS 2.11**

**\$49.95**

## M-DISK

Give your system the extra power you need! Great things come in small packages; M-DISK contains one ultra-miniature, super-fast, diamond-tough PHANTOM DISK DRIVE with built in disk! And not only is the afore-mentioned product miraculously disguised as a floppy disk, but it's a great value since other disk drives cost over \$300! M-DISK's talents stem from one fact: it is not a mechanical device! It's a software program that sets up a memory duplicate of a hardware drive. It then makes DOS treat this "phantom drive" as the real thing. The result is that you get the equivalent of fast and infinitely durable! Programs that use a lot of disk accessing (such as word processors) run as fast as continuous files! M-DISK now takes advantage of MS-DOS 2.11's special device drivers to let it run on virtually every MS-DOS machine we've tested. Time is Money. M-DISK can save you a lot of BOTH!

**192K Sanyo 550/555 required \$34.95**



## CALENDAR by Jon Kring

This daily planning and memo program will help you remember those important dates and meetings! CALENDAR features a dual display window with one side devoted to a monthly calendar, and the other containing your personal notes and memos. This menu-driven program even included helpful search and scan functions which let you locate any date instantly! CALENDAR is perfect as an appointment book, diary, or for anyone who has trouble remembering those special dates.

**128K Sanyo 550/555 required \$24.95**



# MichTron

**576 S. Telegraph  
PONTIAC MI. 48053**

**ORDERS AND INFORMATION  
(313) 334-5700**

## MI-TERM by J. Weaver Jr.

**NO other communications program for the  
MBC-550/555 can make THESE statements:**

**SIMPLE TO USE:** NOTHING to memorize. Every command is accessed with function keys, and is on-screen in plain English AT ALL TIMES.

**NO LONG WAITS:** NO overlay loading - the entire program is only 13K long! Menus are concisely written on a single line.

**9 TRANSFER MODES:** transfer files direct from disk with ANY remote system. Supports XMODEM and DFT (SDT) protocols for error-free communication. Also includes the new SXX format - send binary files as electronic mail messages, with 2 levels of checksums, extraneous character trapping, even embedded comments!

**SIMPLE AUTOLOGONS:** typing "MITERM" from DOS can automatically load your presets, open a disk buffer, and autolog onto your favorite system, with NO ADDITIONAL KEYSTROKES!

**DIRECT SUPPORT:** call the author directly with your questions!

Of course, MI-TERM is written entirely in super-fast 8088 machine language exclusively for the Sanyo 550/555, and has one-key printer, echo, linefeed and buffer toggles, 15 definable preset keys, automatic buffer save to disk, on-line parameter changes, 9600 baud support, screen color options, directories, file deletion, XON/XOFF support, and much more.

**SET YOUR COMPUTER FREE FOR ONLY  
\$79.95**

**128K DISK (RS-232 Modem/Port required)**



## CORNERMAN by J. Weaver Jr.

Tired of wrestling with a sloppy desk littered with notepad, calendar, address book, calculator, et cetera...? Presenting CORNERMAN, the perfect ringside manager. CORNERMAN waits in memory while you use other programs, such as word processors, utilities, and even games! Then when you need to make a calculation or leave a note, CORNERMAN is instantly at your side. With a single keystroke the program appears! CORNERMAN will leave notes for you, do mathematical problems (including conversions between decimal, HEX, and binary!), instantly recall names and phone numbers (even dial for you!), and much more. Once you've finished with CORNERMAN, He quickly departs, putting you back into your program without disturbing a single item. While Sidekick (tm) works fine on the PC's, it doesn't help your Sanyo at all. Hire the perfect ringside manager, put CORNERMAN on your side today!

**128K Sanyo 550/555 required \$39.95**



With income tax time at hand, CalcStar can make it just a little easier to give Uncle Sam his due.

# Printing Tax Forms With CalcStar

By Randolph Mateer

**T**he spreadsheet is probably the most misunderstood and neglected of all computer software. This is unfortunate, since it is also a very powerful and useful program. It has been compared to a hard ledger where columns of data are entered to be totaled, but this is a very naive description. *CalcStar*, with its simple shorthand notation for performing numerous operations on single entries as well as entire columns, goes far beyond this. In fact, this shorthand notation can be considered a programming language, and one that is easier to learn and use than even BASIC.

A spreadsheet also provides a chance for the novice to get hands-on computer experience while gaining more advanced computer knowledge. I am certain that if you learn the basics of *CalcStar*, you will continue to use it long after you

have become an expert with your computer.

## Formatting Templates

**T**he most difficult part of working with *CalcStar* is learning how to format templates. These are spreadsheet displays that contain all the necessary row and column formatting, as well as the imbedded instructions or equations for treating data. The template has no data, but accepts that entered by the user and performs the imbedded operations on command. Screen formatting of templates is important since the printout will be an exact replica of the screen display.

*CalcStar* is ideal for working with standard forms. In order to do this it is necessary to understand the basics of formatting, since spacing and alignment are critical when working with preprinted forms. As an example of this, I am going to show how *CalcStar* can be used to print both sides of a standard 1040 IRS form in addition to performing all the needed calculations.

During the discussion, refer to Figures 1 and 2 at the end of the article, which are printouts of the actual templates telling what entries are made in each cell. These printouts were obtained by using CSDUMP, a utility program found on your *CalcStar* disk. Dumps are very useful for debugging a template or for typing in the template from scratch. It is also possible to dump the template into *Wordstar* format for editing. The final *Wordstar* file cannot be loaded again by *CalcStar*.

The entire discussion deals with 10-pitch printing, or 10 characters per horizontal inch. Once you understand the ideas of formatting, it is a simple

procedure to adapt these to other print pitches.

The two topics governing formatting and printing are column width and printer or output width. Column width is initially fixed by *CalcStar*, the default being 10 characters per column. This can be varied from three to 63 characters.

Numeric data is always right justified. This means it will appear to the right of a column both on the screen and on the printout. The width of a column determines the right-hand margin of the next column of numbers to the left. Complicating matters slightly is the fact that *CalcStar* automatically inserts spaces between the columns. It inserts a space to the left of each column and another to the right of the last column. These spaces are to insure spacing between columns even if you should fill them entirely with data.

To explain this further, let's consider a spreadsheet template with only two columns, each with a width of 35 characters. Since 35 represents 3½ inches at 10 pitch, this will be the width of column B. In addition, we must allow room for the space inserted by *CalcStar*. Each character requires less than ⅛ inch of space. Therefore, the right print line of column A will be slightly less than 3⅝ inches from the right print line of column B.

Printer or output width determines the horizontal placement of the printout on your paper. You are asked to enter printer width during the series of prompts leading to the print sequence. The default value is 132 and is used for printing on 14-inch wide paper.

The Sanyo manual tells you to use a printer width of 80 with 8½-inch wide paper. This is the sum of the maximum characters per line (total column width) and the automatically inserted spaces.



(Randolph Mateer has two degrees in chemistry and is a freelance writer specializing in how-to articles. His work has been published in woodworking, photographic, outdoor, and now computer magazines. He may be contacted at 20524 Gardendale, Detroit, MI 48221.)



Printer width tells *CalcStar* how large a left margin to leave before it begins printing. The total column width determines the actual size of both left and right margins. With a printer width of 80, it will accept a maximum number of characters, or total column width, of 71. The difference between these two figures is again due to the inserted spaces.

If there are too many characters to print on one line, *CalcStar* will print in segments. It does this by printing as much data as can be centered on the first page and then rolling another sheet of paper into the printer. The final columns are printed on the second sheet with row numbers listed at the far left. If printing is being carried out in segments, a message appears on the screen.

By increasing printer width, the printout will be moved to the right. This is because you are telling *CalcStar* you are using wider paper and it should increase its left margin. Changing printer width from 80 to 82 would move the printout one character to the right (one character is placed on the left and one on the right). To move the printout  $\frac{1}{2}$  inch to the right would require increasing the printer width by 10.

Let me sum all this up. If you keep the total column width constant, the printer width determines the far right print margin. The width of each column determines the right print margin of the next column to the left. These are the secrets to formatting a standard form printout.

## IRS Form 1040 — Front

Government tax forms are about eight inches wide. Fortunately, each *CalcStar* print line corresponds exactly to a line on the tax form. If you align the left edge of the paper with zero on the printer bail, format to a total column width of 72 characters and use a printer width of 82, the last column will print approximately  $\frac{3}{8}$  inch from the right edge of the form. This aligns the decimal point of dollar amounts with the vertical line in the far right column of a 1040 form.

If this doesn't work out exactly for you, change the printer width or move the paper to the right or left in the printer. This last technique is also used for fine adjustment.

I have not attempted to format printouts for the top front of the 1040

form. This requires three additional templates, one for the name and address lines, another for lines 1 through 5 and a final one for line 6.

I have used five columns to format the printout for the front of the 1040 form. Actually, four would have been sufficient, but I wanted to bring up several points about this later.

Since the right-hand print line is already set by the total column and printer widths, we have to adjust the width of column E to set the right print line of column D. To do this, take a 1040 form and measure the distance from the vertical line separating dollars and cents in the far right column to the vertical line in lines 9b, 17a, 20a, 21a, or 24 to 30.

You'll find this distance to be  $1\frac{1}{2}$  inches. This corresponds to a total of 15 characters. Subtracting the space inserted by *CalcStar* means the width of column E has to be 14 characters.

Measure the distance between the vertical lines in lines 9a and 9b. This is another  $1\frac{3}{8}$  inches, or 16 characters. Therefore, column D must also be formatted to a width of 15.

Finally, extend the vertical line in 9a to the bottom of the page and measure the distance from it to the vertical line in line 26b. This distance is  $\frac{5}{8}$  inch, or a total of seven characters. Again subtracting the inserted space means that the width of column C has to be six.

The total width of the three formatted columns is 35. Since we know the total width of the template must be 72, columns A and B must have a combined width of 37. You can format these columns to any width totaling this number or you can delete column A and format B to 37. Either way will give the proper printout. You will see this when we format the back of the 1040 form.

This method insures correct spacing between columns. If alignment is not quite correct when you print the form, you should only have to move the paper right or left in the printer. I opted for this method rather than change printer width.

You will notice I have used rows 1 and 2 for naming the template and for entering a repeating text. It is important that you have some data such as this in any column that is used entirely for spacing. If you don't, *CalcStar* will format that column to the default value of 10 when it saves the template.

I have also added another column to

the right that is used to number each line on the template with the corresponding line from the 1040 form. You could, in addition, widen this column and add a few words indicating the data to be entered, such as "wages" or "interest income." To enter these line numbers, it is necessary to type "/R" before each of them. This tells *CalcStar* you are entering text rather than numeric data. If you don't do this, the line numbers will be considered numeric data and *CalcStar* will get upset when it sees a letter following a piece of numeric data.

When you have numbered the lines, enter the equations and form flags from the dump. Form flags are set in each cell where an 'F' appears in Figure 1. The "0.0000" appearing in cells, such as E6 and E25, are placed there by *CalcStar* and not entered with the keyboard.

As soon as you are finished, save the template to disk file. For this purpose I usually use the extension name .TEM. By getting into the habit of saving your templates before using them, you will save yourself the trouble of possibly having to make deletions later in order to enter new data.

## IRS Form 1040 — Back

The back of the 1040 form is much easier to format while the necessary equations become slightly more complicated. You have to use conditional statements to permit more flexibility in the spreadsheet.

*CalcStar* conditional statements are the same as those in BASIC. They take the form IF, THEN or IF, THEN, ELSE. In other words, IF the statement is correct, THEN perform the first operation, ELSE perform the second operation. The IF AND IF and IF OR IF statements are also recognized by *CalcStar*, and although I have not used them for the 1040 form, they are needed for some of the other tax forms.

The conditional statements appear in cells C10 (line 35), C25 (line 46), C30 (line 50), C48 (line 65), and C52 (line 68).

The instructions in cell C10 tell *CalcStar* to check line 34a to see if the entry is zero. IF it is, THEN line 34b is subtracted from line 33, ELSE line 34a is subtracted from line 33. The ELSE operation is carried out only if line 34a is not zero.

Since line 50 can't be less than zero, another conditional statement is used



to check this before subtracting line 49 from line 46.

Finally, the statements in cells C48 and C52 determine whether you are due a refund or owe taxes. If total payments are larger than total taxes, then line 56 is subtracted from line 64 and the result placed on line 65. In the sad event total

taxes are larger than total payments, line 64 is subtracted from line 56 and the difference placed on line 68. The double quotes ("" following several of these conditional statements tells *CalcStar* not to print anything.

I have not used *CalcStar* to calculate actual taxes, since this will require

personalization for your tax bracket. You can either add this or use the spreadsheet to calculate taxable income and then enter the correct amount from the tax tables and recalculate the spreadsheet a second time.

The back of Form 1040 is formatted with three columns. You will notice I have again used rows 1 and 2. Cell C1 is the first cell flagged and allows you to enter the number of dependents so the entry for line 36 can be automatically calculated. A zero has been entered in C1 from the keyboard, so the initial result in C12 does not appear as '!n!'. I have not formatted the boxes in lines 34a, 38 or 39, since these require only an 'x' in the appropriate place.

Using the same measuring procedure, you find the distance between the vertical lines in lines 48 and 47 is 1½ inches, or 15 characters. This means the width of column C must be 14. Subtracting this number from the total column width of 72 leaves 58 for the widths of columns A and B. In order to enter text in A1 and B1, I formatted A to 38 and B to 20.

After typing in the equations from Figure 2, save the template to a disk file.

## Checking And Printing The Finished Form

To test either of these spreadsheets, use a medium weight paper for a printout. This can be placed behind a blank 1040 form to check for horizontal alignment.

As soon as the proper template is loaded, move the cursor to the right until the 1040 line numbers appear on the screen. Go to automatic form mode by typing ";A" and the cursor will move to the first flagged cell. Each time you hit RETURN to enter data, the cursor will move to the next flagged cell. Pressing RETURN after entering data into the last cell causes *CalcStar* to begin recalculating the spreadsheet.

If you do not need to enter data onto every line of the tax form, you can either leave that cell blank by pressing RETURN or enter a zero. In the former case, *CalcStar* will make all calculations and not print on those lines where data was not entered. If you enter zeros, they will be printed on the form. I understand the IRS likes to see the completed forms filled with zeros, so you might take a little extra time to make someone in Washington happy.

This done, save the finished spread-

Figure 1: *CalcStar* File FRT1040.CSD.

```
Position A1 Width 29 Type: Text (Left justified) :Form 1040 Front
Position D1 Width 15 Type: Text (Left justified) :Paper Width 82
Position A2 Width 29 Type: Text (Repeating) :-
Position B2 Width 8 Type: Text (Repeating) :-
Position C2 Width 6 Type: Text (Repeating) :-
Position D2 Width 15 Type: Text (Repeating) :-
Position E2 Width 14 Type: Text (Repeating) :-
Position F2 Width 8 Type: Text (Repeating) :-
Position E3 Width 14 Type:F
Position F3 Width 8 Type: Text (Right justified):7
Position E4 Width 14 Type:F
Position F4 Width 8 Type: Text (Right justified):8
Position C5 Width 6 Type:F
Position D5 Width 15 Type:F
Position F5 Width 8 Type: Text (Right justified):9a,9b
Position E6 Width 14 Type: Numeric :+C5-D5 = 0.0000
Position F6 Width 8 Type: Text (Right justified):9c
Position E8 Width 14 Type:F
Position F8 Width 8 Type: Text (Right justified):10
Position E9 Width 14 Type:F
Position F9 Width 8 Type: Text (Right justified):11
Position B10 Width 14 Type:F
Position F10 Width 8 Type: Text (Right justified):12
Position E11 Width 14 Type:F
Position F11 Width 8 Type: Text (Right justified):13
Position E12 Width 14 Type:F
Position F12 Width 8 Type: Text (Right justified):14
Position E13 Width 14 Type:F
Position F13 Width 8 Type: Text (Right justified):15
Position E14 Width 14 Type:F
Position F14 Width 8 Type: Text (Right justified):16
Position D15 Width 15 Type:F
Position F15 Width 8 Type: Text (Right justified):17a
Position E16 Width 14 Type:F
Position F16 Width 8 Type: Text (Right justified):17b
Position E17 Width 14 Type:F
Position F17 Width 8 Type: Text (Right justified):18
Position E18 Width 14 Type:F
Position F18 Width 8 Type: Text (Right justified):19
Position D19 Width 15 Type:F
Position F19 Width 8 Type: Text (Right justified):20a
Position E20 Width 14 Type:F
Position F20 Width 8 Type: Text (Right justified):20b
Position D21 Width 15 Type:F
Position F21 Width 8 Type: Text (Right justified):21a
Position E22 Width 14 Type:F
Position F22 Width 8 Type: Text (Right justified):21b
Position F24 Width 8 Type: Text (Right justified):22
Position E25 Width 14 Type: Numeric :+sum(E3>E24)+D15+D19 = 0.0000
Position F25 Width 8 Type: Text (Right justified):23
Position D26 Width 15 Type:F
Position F26 Width 8 Type: Text (Right justified):24
Position D27 Width 15 Type:F
Position F27 Width 8 Type: Text (Right justified):25
Position D28 Width 15 Type:F
Position F28 Width 8 Type: Text (Right justified):26a
Position B30 Width 8 Type:F
Position D31 Width 15 Type:F
Position F31 Width 8 Type: Text (Right justified):27
Position D32 Width 15 Type:F
Position F32 Width 8 Type: Text (Right justified):28
Position D33 Width 15 Type:F
Position F33 Width 8 Type: Text (Right justified):29
Position D34 Width 15 Type:F
Position F34 Width 8 Type: Text (Right justified):30
Position E35 Width 14 Type: Numeric :+sum(D26>D34)+B29 = 0.0000
Position F35 Width 8 Type: Text (Right justified):31
Position E37 Width 14 Type: Numeric :+E25-E35 = 0.0000
Position F37 Width 8 Type: Text (Right justified):32
```



**Figure 2: CalcStar File BK1040.CSD.**

```

Position A1 Width 38 Type: Text (Left justified) :Form 1040 Back Paper Width
82
Position B1 Width 20 Type: Text (Left justified) :No. of Dependents
Position C1 Width 14 Type:F Numeric : = 0.0000
Position A2 Width 38 Type: Text (Repeating) :-
Position B2 Width 20 Type: Text (Repeating) :-
Position C2 Width 14 Type: Text (Repeating) :-
Position D2 Width 8 Type: Text (Repeating) :-
Position C3 Width 14 Type:F
Position D3 Width 8 Type: Text (Right justified):33
Position C4 Width 14 Type:F
Position D4 Width 8 Type: Text (Right justified):34a
Position C9 Width 14 Type:F
Position D9 Width 8 Type: Text (Right justified):34b
Position C10 Width 14 Type: Numeric :+C4=C3-C9+C3-C4 = 0.0000
Position D10 Width 8 Type: Text (Right justified):35
Position C11 Width 14 Type: Numeric :+1000*C1 = 0.0000
Position D11 Width 8 Type: Text (Right justified):36
Position C12 Width 14 Type: Numeric :+C10-C11 = 0.0000
Position D12 Width 8 Type: Text (Right justified):37
Position C14 Width 14 Type:F
Position D14 Width 8 Type: Text (Right justified):38
Position C16 Width 14 Type:F
Position D16 Width 8 Type: Text (Right justified):39
Position C18 Width 14 Type: Numeric :+C14+C16 = 0.0000
Position D18 Width 8 Type: Text (Right justified):40
Position B19 Width 20 Type:F
Position D19 Width 8 Type: Text (Right justified):41
Position B21 Width 20 Type:F
Position D21 Width 8 Type: Text (Right justified):42
Position B22 Width 20 Type:F
Position D22 Width 8 Type: Text (Right justified):43
Position B23 Width 20 Type:F
Position D23 Width 8 Type: Text (Right justified):44
Position C24 Width 14 Type: Numeric :+sum(B19>B23) = 0.0000
Position D24 Width 8 Type: Text (Right justified):45
Position C25 Width 14 Type: Numeric :+C18>C24:+C18-C24 = 0.0000
Position D25 Width 8 Type: Text (Right justified):46
Position B26 Width 20 Type:F
Position D26 Width 8 Type: Text (Right justified):47
Position B28 Width 20 Type:F
Position D28 Width 8 Type: Text (Right justified):48
Position C29 Width 14 Type: Numeric :+B26+B28 = 0.0000
Position D29 Width 8 Type: Text (Right justified):49
Position C30 Width 14 Type: Numeric :+C25>C29:+C25-C29 = 0.0000
Position D30 Width 8 Type: Text (Right justified):50
Position C31 Width 14 Type:F
Position D31 Width 8 Type: Text (Right justified):51
Position C32 Width 14 Type:F
Position D32 Width 8 Type: Text (Right justified):52
Position C33 Width 14 Type:F
Position D33 Width 8 Type: Text (Right justified):53
Position C34 Width 14 Type:F
Position D34 Width 8 Type: Text (Right justified):54
Position C35 Width 14 Type:F
Position D35 Width 8 Type: Text (Right justified):55
Position C37 Width 14 Type: Numeric :+sum(C30>C35) = 0.0000
Position D37 Width 8 Type: Text (Right justified):56
Position B38 Width 20 Type:F
Position D38 Width 8 Type: Text (Right justified):57
Position B39 Width 20 Type:F
Position D39 Width 8 Type: Text (Right justified):58
Position B40 Width 20 Type:F
Position D40 Width 8 Type: Text (Right justified):59
Position B41 Width 20 Type:F
Position D41 Width 8 Type: Text (Right justified):60
Position B43 Width 20 Type:F
Position D43 Width 8 Type: Text (Right justified):61
Position B44 Width 20 Type:F
Position D44 Width 8 Type: Text (Right justified):62
Position B45 Width 20 Type:F
Position D45 Width 8 Type: Text (Right justified):63
Position C47 Width 14 Type: Numeric :+sum(B38>B45) = 0.0000
Position D47 Width 8 Type: Text (Right justified):64
Position C48 Width 14 Type: Numeric :+C47>C37:+C47-C37:"" = ""
Position D48 Width 8 Type: Text (Right justified):65
Position C49 Width 14 Type: Numeric :+C48 = 0.0000
Position D49 Width 8 Type: Text (Right justified):66
Position D50 Width 8 Type: Text (Right justified):67
Position C52 Width 14 Type: Numeric :+C37>C47:+C37-C47:"" = ""
Position D52 Width 8 Type: Text (Right justified):68

```

sheet to a disk file using a different filename. During the prompts leading to the print sequence, you have to instruct *CalcStar* to begin printing at cell A3 and to end printing at the column to the left of the one containing Form 1040 line numbers (E37 for the front and C52 for the back). In both cases, the printer width is 82.

When the computer asks if you want to "fix ordinates (y,n)," answer no by hitting ENTER.

When you finally make a printout onto a 1040 form, you have to remember that *CalcStar* scrolls down one line before beginning to print. This means you have to align the printer one line above the first line to be printed on the form.

In my case I have found that for both front and back, I have to align the right side of the paper with the number 82 on my printer bail. For the front of the form, I move the paper slightly more than one line above line 7 and for the back, exactly one line above line 33.

## Discussion

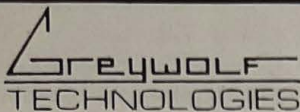
Any of the common tax forms can be formatted in the same way used for the 1040. You can use a maximum of seven columns, with a total width of 72 and a printer width of 82.

Once you have formatted your IRS tax forms, you might want to look into the possibility of setting up tax record files. These could cover any area that you currently keep data for income tax purposes. If the data files are formatted properly, they can be merged onto the appropriate tax form and data transferred directly to the tax form spreadsheet. This eliminates the need to type in data. Not only would this save a great deal of time, but it would limit the possibility of errors. Depending upon the size of your data files, this might require more than 128K of RAM.

I think you can see how useful *CalcStar* is. Calculating and printing tax forms is just one of the many things you can have it do. In fact, any BASIC program for data entry can be formatted and carried out with *CalcStar*. In addition, this can be done in a shorter time than necessary to write and debug a standard program.

*CalcStar* is not nearly as fast as BASIC, nor does it have the versatility, but it is quick and simple. As I said earlier, I think you'll continue to use *CalcStar* long after you've become an expert with your computer.





## SUPER SYSTEM 800-2 for Sanyo MBC 550

Will Run The Sanyo Video Board  
**\$1395.00 Complete**

### Hardware Features:

Operates as a standard 555-2 with two 360K drives  
Runs copy protected software, such as Michtron's Demon Seed and Cash Man  
Works with Sanyo's New Video Graphics Board  
Runs both MS-DOS 1.25 and MS-DOS 2.11 operating systems  
Flip a switch and run your Super Sanyo System with dual 811K drives

### Sanyo Software:

Wordstar, Easywriter, Calcstar, Sanyo Basic, MS-DOS 1.25, MS-DOS 2.11  
EasyPac or StarPac (optional)

### Software Features:

100% disk compatibility across MS-DOS and PC-DOS, including ability to read, write and format disks from many computers including the IBM PC, the DEC Rainbow, and Tandy 2000  
Built-in RAM disk program offering disk access which is hundreds of times faster than floppies  
SortDir program to alphabetize and sort the large directories that these drives can hold  
ASCII Screen Dump program  
Calendar Program, a personal datebook which displays a two-month calendar on the screen  
Certificate to purchase a top-selling data base, Personal Pearl, for only \$99.95, a savings of \$200.00. Personal Pearl is a product of Pearlsoft, Inc.

### PLUS

Clock/Calendar Board  
(\$139.95 Value)

### Plus

256K of Memory  
(\$120 Value)

### Plus

Video Display Monitor  
(\$125.00 Value)

18 Dog Lane • Storrs, CT 06268

(203) 928-6555 or (203) 928-3654

Continued from page 86

"niceties" are included at the price of \$19.95 should have been mentioned. In fact, the price is one of our selling points and the main reason we feel *Knobelspiel Generahl* is such a value. The reviewer also neglects to fully point out that one can play against the computer or any combination of up to four players. True, he does quickly state that it is designed for "one to four players," but he does not explain how he felt the computer vs. player version handled its strategy, whether it was a worthy opponent, and whether or not the repartee that the computer engaged in was, in fact, engaging. These were all strong points that we feel should be given coverage.

Now for the reviewer's two complaints. First he says, "I was disappointed in that the program was sensitive to upper/lowercase input and found that lowercase input was required even though uppercase letters were displayed on the screen." In the game's documentation and in the user prompts, it is stated many times: "When the computer asks for a player's name, type it in capital letters, and while the game is being played, type all choices in lowercase." The reason for this is that the names appear on the screen throughout the game and with the manner in which the programmer sets up the screen, uppercase names look more impressive. After the player's name is entered, the only other input required during the play of the game is either the letters a, b, c, ab, ac, bc, abc, or O. For the convenience of the players, the programmer made these entries to be inputted in lowercase. Who wants to hit the SHIFT key every time? And is it that much trouble to toggle the SHIFT LOCK key so that your entries are in lowercase? It is truly puzzling that this system of input would be called a bug by the reviewer, and when he says "lowercase input was required even though uppercase letters were displayed," I can only wonder what game he was playing, because it certainly wasn't *Knobelspiel Generahl*.

How nice of the reviewer to admit that, since he doesn't care for games of this genre anyway, he found it difficult to be totally objective. At \$19.95, Wolfsangel never made claims in its ads for "state of the art"; indeed, because we readily admit it is not "SOA," we charge a price well-below the standard price of such SOA releases. The price of \$19.95, when taken into account with the aforementioned "niceties" (flawless and understandable documentation, an ASCII version of the files for experimentation and transportation, a demo program which many dealers are presently displaying in their showrooms, and an *EasyWriter* file so that extra booklets can be printed by the end user) make *Knobelspiel Generahl* a good value at a good price, and this is all we've ever claimed. At a price that one usually pays for bug-laden public domain software with no graphics, Wolfsangel Enterprises offers a feature-laden entertainment/educational program which is not copy-protected and can be used as a great learning tool for both budding programmers and those who wish to glean better command

of Sanyo BASIC graphics. If this is not state of the art and is lacking because it is not written in machine language, so be it.

In conclusion, allow me to make this final defense of *Knobelspiel Generahl*: It has been a popular European pastime for well over a century. Just as some people would be bored by chess or checkers, this does not mean those are bad games. We close with the following comments:

- 1) JB Computers of Fremont, Calif.: "We appreciate your sending our last request so quickly. We have decided to use your game as our free giveaway incentive with our Sanyo Package."
- 2) Cal Lindell, president of Sanyo PC Hackers/International: "... excellent game ... (You) certainly spent a lot of time on graphics!"
- 3) Other dealers from which we have yet to hear a complaint: Proto PC of Minneapolis, Minn.; TWK of Tunkhannock, Penn.; Crown Computers of Hatfield, Penn.; Creative Computer Corp. of Poway, Calif.; and Eastside Electronics of Redmond, Wash. And many individual end users from which we have never heard a complaint or had a return.

Unfortunately, much of what I have written will fall on deaf ears, human nature being what it is. After all, as publisher of *Knobelspiel Generahl* I am going to defend it against bad reviews, and I'm afraid the outsider will say "Ah, methinks he protesteth too much!" Therefore, since it is well-nigh impossible to defend a piece of software after it has been panned, I must insist that you either give the program to a new reviewer, or don't bother publishing the review at all.

Robert Kvinneland  
Wolfsangel Enterprises  
Hatfield, PA

### Editor:

This letter is in response to the review of *SDT (Sanyo Direct Transfer)*. The review was in the January issue of *SOFT SECTOR* [1985, Page 78].

The reviewers claim that "*SDT* is not without flaws," and that messages could not be erased from the screen. Had either [of the reviewers] contacted us about this "flaw," we would have been able to correct the situation for them. The flaw is actually one that is in the *Mi-Term* terminal program that they were using and not that of *SDT*. When using different colors on *Mi-Term*, they do not scroll all three video pages and this causes the leftover messages.

All [the reviewers] need to do is change the background and text colors of *Mi-Term* and their review of *SDT* will be "without flaw."

Ralph Landry  
Michigan Software  
Novi, MI





# RACKSELLERS

The stores listed below carry **SOFT SECTOR** on a regular basis and may have other products of interest to Sanyo 550 series users. We hope you will patronize those in your area.

<b>ALABAMA</b> Birmingham	Command Computer Computer Engineers Inc. The Computer Store Computer Shoppe Madison Books Mall Tel Trade-N-Books
Fayette Madison Mobile Montgomery	Datasystems Apollo Computers Far West Computers Tri-Tek, Inc. Books, Etc.
<b>ARIZONA</b> Flagstaff Phoenix	
Tempe	
<b>CALIFORNIA</b> Folsom Hayward Huntington Beach La Jolla Laguna Niguel Lancaster Los Angeles	Computers, Etc. 3E Software & Systems  Hammer Industries Affordable Computers JCS Computers Desert Computing Computer Masters Computer Phone Mart OPAMP Wiest Custom Studios Creative Computer Corp. Famis Computers Software Centre International Home Computing Centers, Inc. Byte & Floppy Computers Programs Unlimited Aquarian Age Computer Center El Corral Bookstore Paradise Computer Systems Eash & Ellis Information Center Sawyer's News, Inc. Data Systems West Hardings Way News Computer Haven Friendly Computers The Computer Place ECX Computer Co.
Norco Poway Riverside Sacramento San Bruno San Diego	
San Francisco San Luis Obispo	
Santa Maria Santa Rosa Sherman Oaks Stockton Upland	
Vista Walnut Creek	
<b>COLORADO</b> Aurora Colorado Springs Englewood	Devi Computers The Computer Farm Whole Life Distributors
<b>CONNECTICUT</b> Manchester Meriden Southington Stamford Wallingford	Computer Training Institute Total Computers Vincor Computer Systems, Inc. Norman Block Associates Comstat
<b>DELAWARE</b> Wilmington	Nor-Mar — The Smoke Shop
<b>FLORIDA</b> Altamonte Springs	International Music & Recording Micro's Etc. Software, Software, Inc. All American Electronics Software City Southern Micro Computer Co. Software Plus More Total Information Computers Computerized Applications Southern Microcomputer Co. AA Computer Exchange Florida Computer Resources Electronic Specialty Products City News Stand D & B Office Equipment Micro's, Etc. Compuworld Micro's, Etc.
Boca Raton Brooksville Clearwater	Allstate Business Center Computers, Computers, Computers Computer Image MTS, Inc. Advanced Business Systems, Inc. Rainbow Computer Center Micro's Etc. Computer Systems Group Computer Town Micro's Etc. Micro's Etc. Computer Trends Sanibel Audio
Davie Ft. Lauderdale Gainesville Hialeah Jacksonville	
Longwood Melbourne	
Merritt Island	
Miami	
Niceville Orlando	
Ormond Beach Panama City	
Plantation Point Orange Port Richey Sanibel Island	

Sarasota	1 Computer Place Family Computers Home Computer Discount, Inc. Software Connection Computer Market Place Computer Dimensions Personal Computer Center Southern Micro Computer Co.
Seminole St. Petersburg Stuart Tampa	
<b>GEORGIA</b> Augusta Atlanta	Ram, Inc. A & S Software Guild News Agency Southern Computer Alboes Computers Com-Puters Certified, Inc.
Columbus Decatur Lithonia	Western Computer & Office Supplies H & S Computer Supplies Canyon Computers & Communications Computer Concepts, Inc.
<b>IDAHO</b> Boise Moscow Nampa Pocatello	
<b>ILLINOIS</b> Bloomington Chicago	J. Powell & Associates Central Business Machines Hyde Park Computers Learn-A-Bit Sunnycrest Business Systems
Rockford Urbana	
<b>INDIANA</b> Ft. Wayne	Bytrex Digital Perspectives A Computer Store Toso Computer Shop Computer Corner Von's Computers
Indianapolis Kokomo Marion West Lafayette	Computer Outlet Computer Education Assoc. Computer Connection
<b>KANSAS</b> Lawrence Mulvane Salina	Accounting Data Corp Software Source Computer Stall Falsoft, Inc. Bluebird Computer
<b>KENTUCKY</b> Cynthiana Louisville Owensboro Prospect Radcliff	
<b>LOUISIANA</b> Gretna Opelousas Sulphur Thibodaux	
<b>MAINE</b> Bangor	Downeast Specialty Co.
<b>MARYLAND</b> Baltimore Bethesda Camp Springs Millersville Oakland Pasadena Riverdale Savage Silver Springs Towson Waldorf	Personal Computer Learning Center Technology Equipment Center Compudeo Comp-U-Type Englanders Pharmacy RW Electronics Computer Center Custom Computers D & H Distributing Co. A-OK Computers Greetings & Readings Waldorf Computer
<b>MASSACHUSETTS</b> Danvers Waltham Woburn	Microcon Computers & Softwarecenter Computer Magic Microcon Software Centers
<b>MICHIGAN</b> Allen Park Ann Arbor Berkley Charlotte Dearborn	Galaxy Computers University Cellar Family Computers Computer Options Alpha-K Computer Co. DSL ComputerTowne Computer Control Systems Petry Products POS Electronic Business Systems Bursma Electronic Dist. Co. Programs Unlimited Computer Corner Business Computer Systems Computer Plus, Inc. Key Book Shop 8-Bit Corner Michigan Software C/C Computer Systems MichTron Rochester Book Center 1-2-3 Compute New Logic Computers Popular Computer Centers, Inc. The Family Room Creative Center Small Business Computers, Inc. ComputerTech Gerry's Book Co. Ye Olde Computer Shoppe
Farmington Fenton	
Fremont Grand Rapids	
Lapeer Mt. Clemens	
Muskegon Novi Owosso Pontiac Rochester Royal Oak	
Southgate Sterling Heights Troy Union Lake Wyandotte Ypsilanti	

<b>MINNESOTA</b> Minneapolis Rochester	Computer Exercise World Computer Exercise World
<b>MISSOURI</b> Aurora Columbia Creve Coeur Kansas City Republic St. Louis	Southland Electronics Computer Concepts Alcor Associates Brands Mart Computers Franklin Computers Software Centre
<b>MONTANA</b> Billings Whitehall	PC Center Rambyte Computer Institute
<b>NEBRASKA</b> Omaha	Computers & Components
<b>NEVADA</b> Las Vegas Reno	Computer Magic High-Tek Computer
<b>NEW HAMPSHIRE</b> Berlin	E&S Computing
<b>NEW JERSEY</b> Lake Hopatcong Lawrenceville Ocean City	Jefferson Computer Center Microcon Computer & Software The Computer & Software Store
<b>NEW MEXICO</b> Alamogordo Albuquerque	New Horizons Computer Systems Page One Newsstand Programs Unlimited Zia Computers Zia Computers Las Cruces Computers
Las Cruces	
<b>NEW YORK</b> Amityville East Rochester Farmingville Great Neck Lake Grove Plattsburg Rochester	Ross Enterprises Fox Computer Services DataScan Computer Systems P & T Computers Programs Unlimited Adirondack Computer Supply Computer Connections Computer Directions Vixia Computer Center Software City
Wappingers Falls	
<b>NORTH CAROLINA</b> Atlantic Beach Carboro Chapel Hill Mt. Airy Raleigh	VBS MicroSystems Triangle Data Systems Pascal Mountain Computers Computopia Crazy Bob's Discount Computers Discount Computer Sales
Winston-Salem	
<b>NORTH DAKOTA</b> Buxton Riverside	Systematics Computer Associates
<b>OHIO</b> Ashland Cambridge Canal Fulton Canton	Infopro Comtech Gemstone Computing Micro's Etc. Programs Unlimited Cincinnati Computer Center Video Barn The Book Rack Friend Chips Computer Warehouse Genesis Micro Systems Microwave Magic Hansbarger's Electronic Connexion Complete Computing Programs Unlimited Marion Computer Center Perfect Computers Software Centre International Big Byte Computers Alpha Computer Services, Inc. D & K Computer Sales & Service Computer Gallery Reitz Electronics
Cincinnati	
Columbus Cuyahoga Falls Euclid Fairborn Fairfield Greenville Kettering Lombard Mafield Heights Marion Niles North Olmstead Poland Ravenna St. Clairsville Toledo	Merit Computers Data Station — Tulsa
<b>OKLAHOMA</b> Oklahoma City Tulsa	
<b>OREGON</b> Beaverton Eugene Hillsboro	Creative Computers & Electronics University of Oregon Bookstore Quest Enterprises, Inc. Nomies Video Tec Super Soft
Salem	
<b>PENNSYLVANIA</b> Ardmore Butler Exton Mt. Penn Philadelphia Phoenixville Pittsburgh Warrington	Computers Plus Software Corner Software City Peripherals, Computers & Supplies Same Hole In The Wall Stevens Computer Center Computer Bug Computers Here
<b>RHODE ISLAND</b> Cumberland	Mike's CP & Software



## SOUTH CAROLINA

Charleston  
Heights  
Travelers Rest  
Software Haus  
Concurrent Technologies Corp.

## TENNESSEE

Knoxville  
Nashville  
First Byte Computer Co.  
Software First

## TEXAS

Austin  
Dallas  
Houston  
Electronics Insight  
ABS Business Products  
Computer King  
Texas Computer Products  
Wagner Bros. Computer Store

## San Antonio

UTAH  
Logan  
Provo  
Sound Station  
Lloyd's Business Machines

## VERMONT

Rutland  
Computer Marketing

## VIRGINIA

Alexandria  
Alonso Book & Periodicals

Arlington  
Danville  
Fairfax  
Falls Church  
Fredericksburg  
Gloucester Point  
Hampton  
Norfolk  
Springfield  
Virginia Beach  
Williamsburg  
The Other Office Supply Store

## WASHINGTON

Bellevue  
Centralia  
College Place  
Federal Way  
Marysville  
Commercial Computer Systems  
Centralia Computer Center  
Discount Computer Supply  
Compu-Place  
Crown Microproducts  
More Than Games  
Computer Centers  
Computer World  
Puguet Sound Electronics  
Bits & Chips  
Pioneer Computers  
R&K Enterprises  
Quality Software

Renton  
Seattle

## Spokane

## WEST VIRGINIA

Charleston  
Morgantown  
The Computer Tree  
Computer Closet

## WISCONSIN

Janesville  
Stevens Point  
Emerald Computers  
Mom's Computers

## AUSTRALIA:

SYDNEY  
Kingsford  
Paris Radio Electronics

## VICTORIA

Melbourne  
Computer Biz

## CANADA:

ALBERTA  
Calgary  
Tesseract Computer Systems

Edmonton  
The Computer Shop  
CompuSoft  
Computique  
Compu-ware  
Disk and Chip  
Kelly Software Distributors  
LEW Computers

## Grand Prairie

## BRITISH COLUMBIA

Abbotsford  
Richmond  
Langley  
Pentiction  
Prince George  
Surrey  
Victoria  
Clearbrook Computer Centre  
Computer King  
Mainland Magazine Service  
Corporate Computers  
Computer King  
Computer King  
Odyssey Computer Services

## MANITOBA

Winnipeg  
Micro-Mentor, Inc.

## ONTARIO

Burlington  
Guelph  
Kitchener  
London  
Ottawa  
Scarborough  
Toronto  
Burlington Business Systems  
Neutron Computers, Inc.  
Home Computer Centre  
Town & Country Business Machines  
E.T. Wilson Office Equipment LTD.  
Scitron  
Computer Junction  
CP&A

Waterloo  
Windsor  
Computer Junction  
Facts & Figures Computer Service

## QUEBEC

Montreal  
Lemond PC

## SASKATCHEWAN

Saskatoon  
Memory Lane Computers

## ENGLAND

East Sussex  
Malimerx LTD

## NEW ZEALAND

Palmerston North  
Viscount Electronics LTD

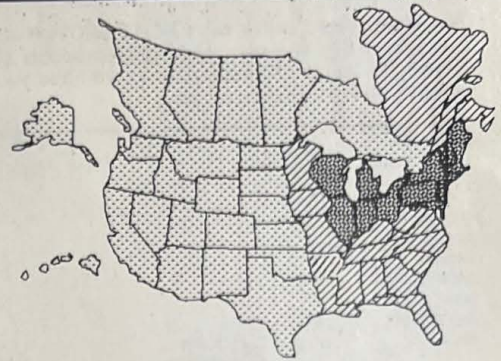
## VENEZUELA

Mirlebo  
Byte Computer Center

# ADVERTISERS INDEX

We encourage you to patronize our advertisers—all of whom support the Sanyo 550/555 series computers. We will appreciate your mentioning **SOFT SECTOR** when you contact these firms.

A-OK Computers.....	55, 57
AA Computer Exchange .....	71
BGW Systems .....	56
B-T Distributors .....	15
Binary Tree Technology .....	83
Block Marketing, Inc. ....	41
CM Associates .....	69
Chryson Computer .....	82
CompuSoft .....	12
Comp-U-Type.....	13
Computer Alpha Corp.....	27
Computer Associates, Inc. ....	12
Computer Creations, Inc. ....	65
Computer Gallery, Inc.....	33
Computer Solutions .....	74
Computer Toolbox, Inc., The .....	31
Computer Warehouse.....	3
Crazy Bob's Computer Warehouse .....	BC
Desert Technologies.....	28
DISKcount Software .....	75
Displayed Video .....	73
Diversified Computers .....	15
EWDP .....	69
Federal Hill Software .....	23
Future Systems.....	47
Greywolf Technologies, Inc. ....	39, 92
Hammer Industries, Inc.....	47
ICR FutureSoft .....	5
ITH, Inc. ....	19
Irishman Software .....	56
J&M Systems .....	43
James River Group, Inc., The .....	25
LaPlata Research .....	30
Lemberger Company, The .....	74
Level IV Products, Inc. ....	26
M.W.S. Computers .....	67
Michigan Software Distributors, Inc.....	50
MichTron .....	IFC, 51, 87
MICRO-G .....	10
Migraph Software .....	86
Moonwolf Game Co.....	19
Olympic Educational Software .....	11
Owl-Services .....	67
Pacific Distributors .....	50
Parkwyth Services .....	29
Peripheral Products Distributing .....	80
Prickly-Pear Software .....	46
Rocky Mountain Micro .....	49
ProgramKey .....	13
Sanyo .....	63



Call:  
Jack Garland  
Garland Associates, Inc  
10 Industrial Park Road  
Hingham, MA 02043  
(617) 749-5852

Call:  
Kate Tucci  
Advertising Representative  
9529 U.S. Highway 42  
P.O. Box 385  
Prospect, KY 40059  
(502) 228-4492

Call:  
Cindy Shackleford  
Director, West Coast Office  
12110 Meridian South—Suite 8  
P.O. Box 73-578  
Puyallup, WA 98373-0578  
(206) 848-7766

Sanyo City .....	42
Sigma Research Associates .....	76
Silver Fox Computers .....	77
Softies .....	15
Soft Sector On Disk .....	35
Spectrum Solutions.....	19
Synergistic Software.....	79
Systems Peripherals Consultants .....	71
Tampa Bay Digital .....	47
TOP Software .....	35
TW Technologies.....	59
Thumper Productions.....	76
Total Learning Systems .....	7
U.S. Digital Corporation .....	78, IBC
Wagner Brothers .....	15, 21
Writing Consultants .....	21, 23
Wyndhammer .....	47

## SUBSCRIPTION INFORMATION

If you do not receive your copy of **SOFT SECTOR** by the 15th of the month on the cover, send us a card and we will mail another immediately via first class mail.

You must notify us of a new address when you move. Notification should reach us no later than the 15th of the month prior to the month in which you change your address. Sorry, we cannot be responsible for sending another copy when you fail to notify us.

Your mailing label also shows an "account number" and the subscription expiration date. Please indicate this account number when renewing or corresponding with us. It will help us help you better and faster.

For Canadian and other non-U.S. subscribers, there may be a mailing address shown that is different from our editorial office address. Do not send any correspondence to that mailing address. Send it to our editorial offices at P.O. Box 385, Prospect, KY 40059.



# "MERCHANDISER" BOOSTS STORE PROFITABILITY

An easy to use Point-of-Sale/Inventory Control system pays for itself through faster turns of a more closely managed inventory. After all, it's only moving items that generate profits — "dead" stock is just costly overhead.

## A software solution

The MERCHANDISER program for PC's allows you to retain personal control while providing immediate access to vital information like daily sales reports, suggested reorder items, etc. Every time you make a transaction, it prints an invoice/receipt and automatically updates inventory. MERCHANDISER does not change your everyday counter activity, but only improves it to save you lots of time and grief. It can even record serial numbers if you want.

The following are logically integrated into one streamlined system:

- ☆ Counter point of sale
- ☆ Inventory control
- ☆ Receiving
- ☆ Daily & monthly reports
- ☆ Customer mailing lists
- ☆ Vendor phone directory
- ☆ Credit/returns

MERCHANDISER is suitable for a wide range of retail businesses. Even wholesalers can use the inventory management capability to their benefit. (For cost of goods, it uses "Weighted Average Cost" which is most accurate for small businesses.)

MERCHANDISER goes beyond making inventory (up to 65,000 items) easy to control. This sophisticated program also updates your customer mailing list every time you make a sale and can generate



*A retail System*

selective direct mail campaigns. At the counter, MERCHANDISER immediately figures sales tax, salesperson commissions (as you wish), and product profitability reports. And it warns you if you key in a sales price that is below your standard margin (it won't calculate a commission for sales below margin!).

## No experience necessary

MERCHANDISER is very logically menu-driven and hardly requires a book, although it comes with an attractive and well-organized manual. Believe it or not, previous computer experience is not necessary. Even the first time computer user will be able to get MERCHANDISER up and running with a minimal investment in learning time.

## Runs very fast

MERCHANDISER is provided in machine code, so that all transactions run extremely fast. The average time to search for specific information is less than two seconds on an IBM PC. No annoying delays. MERCHANDISER makes your PC work like a mainframe!

## ★ ATTENTION DEALERS! ★

### Consignment plan

Order a Demo (which you can duplicate as much as you want) and exercise the option of receiving one fully operational MERCHANDISER product on CONSIGNMENT! When it sells, you can simply receive a replacement unit COD, retaining one on consignment. Thus you get freedom from risk and good cash flow.

**DON'T WAIT TO GET IN  
ON THIS — CALL NOW!**

## Dealer Support

- ☆ Duplicatable Demos
- ☆ Consignment Software
- ☆ Co-op Ad Program
- ☆ Ad slicks

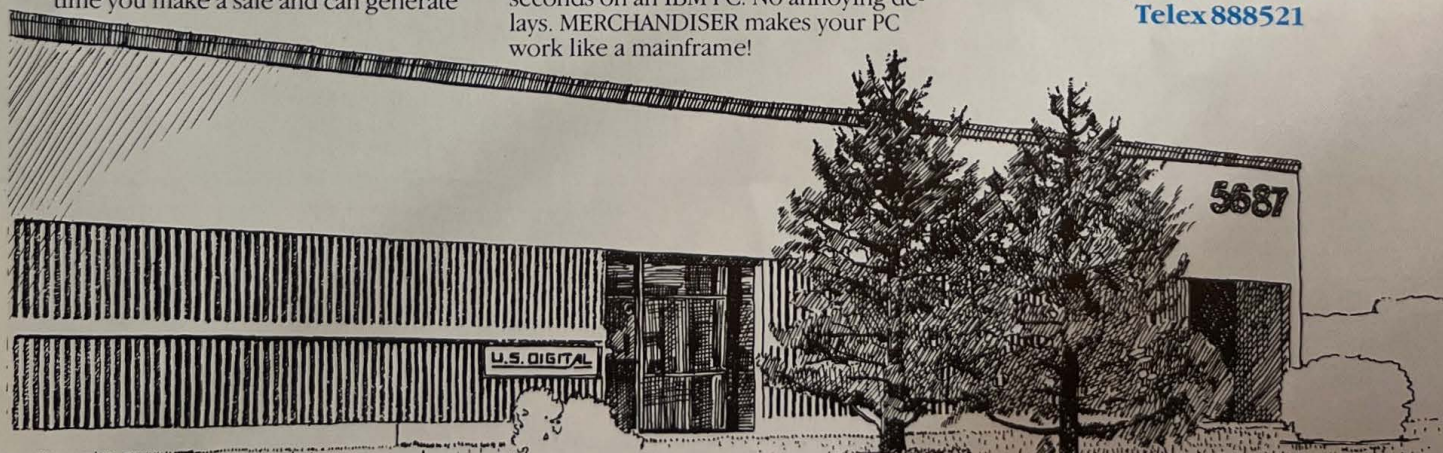
## Available now

MERCHANDISER runs on PC compatibles and the Sanyo 555 with 192K and floppies or hard disk. Designed for busy store operation, installation onto your computer is easy and fast.

MERCHANDISER is making several stores more profitable right now. It has proven to be more powerful than comparable systems over twice its suggested retail price.

## U.S. Digital Corporation

5687 S.E. International Way  
Portland, Oregon 97222  
(503) 654-0668  
Telex 888521



Quality Software for Entrepreneurs  
**U.S. DIGITAL**



*the  
Nation's  
Low Price  
Leader*



CASH PRICES ONLY

# Crazy Bob's

## Has The Best Prices on Sanyo



**CRAZY BOB'S MBC 555-CB 899**  
16 Bit, 128K, 2-360K Disk Drives, MS-DOS, Wordstar, CalcStar, Easywriter and Sanyo Basic.

**SANYO MBC 555-2 1059**  
16 Bit, 128K, 2-360K Disk Drives, MS-DOS, Wordstar, CalcStar, Easywriter, InfoStar, MailMerge, SpellStar and Sanyo Basic.

**SANYO MBC 550-2 699**  
**12 FOOT KEYBOARD EXTENSION CABLE 7.99**

### MONITORS

**PANASONIC CT 1300D 329**  
Rated Best Monitor for 550 Series in September Soft Sector. 13 Inch Color RGB/Composite, Data Grade, Includes Cable, Ready to Run. (Limited Quantities)

**TAXAN 105 MONITOR 99**  
12" Amber Composite While They Last

**AMDEK 300A 139**  
12" Amber Composite Monitor

**MEMORY UPGRADE SET OF 64K 29.95**

**Crazy Bob's  
DS/DD Disks**

**\$1.30**

Price Per Disk in Crazy Bob's  
Famous 25 Pack - First Quality  
Lifetime Guarantee

**VERBATIM 10 DS/DD 29.95**  
**DYSAN 10 DS/DD 29.95**



**SANYO VIDEO BOARD 179<sup>95</sup>**  
Run Lotus 1-2-3  
GW Basic, DOS 2.11

**UPGRADE KIT 159**  
2nd DS/DD Drive to upgrade 550-2. Complete with Instructions and Mounting Hardware.

**TEAC FD55F DRIVE 139**  
96 TPI Disk Drive (While They Last)

**SERIAL PORT (Below Dealer Cost) 59.95**  
For 550 Series Computers (Limited Supply)

### Printers

**TOSHIBA 1340 699**  
Dot Matrix That Looks Better Than a Daisy Wheel

**EPSON RX-80 100 CPS, 10" Carriage 229**

**PANASONIC KX-P1091 299**  
120 CPS Near Letter Quality Printer with Tractor Feed, 1K Buffer and Proportional Spacing

**OKIDATA ML 84P 200 CPS, Dual Mode 699**

**OKIDATA ML 82A 120 CPS, Serial or Parallel 299**

**OKIDATA ML 92P 160 CPS, Near Letter Quality 379**

**EPSON RX-80 F/T Friction or Tractor Feed 299**

**EPSON RX-100 NEW Wide Carriage Printer 399**

**Crazy Bob's**  
**404 451-2030**  
**Discount Computers**

3790 GREEN INDUSTRIAL WAY, ATLANTA, GA 30341

AVAILABILITY AND PRICES SUBJECT TO CHANGE



Corporate  
Accounts  
Welcomed



4200 Lake Ridge Dr. - Raleigh, N.C. 27609

919-878-3704